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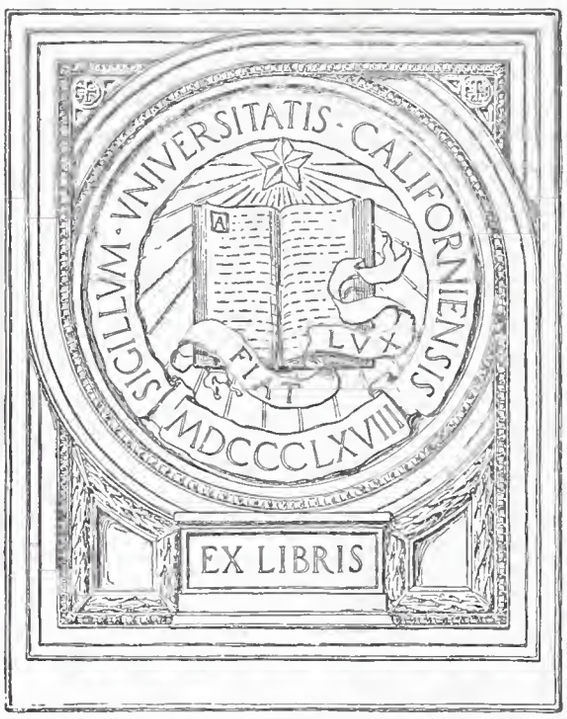

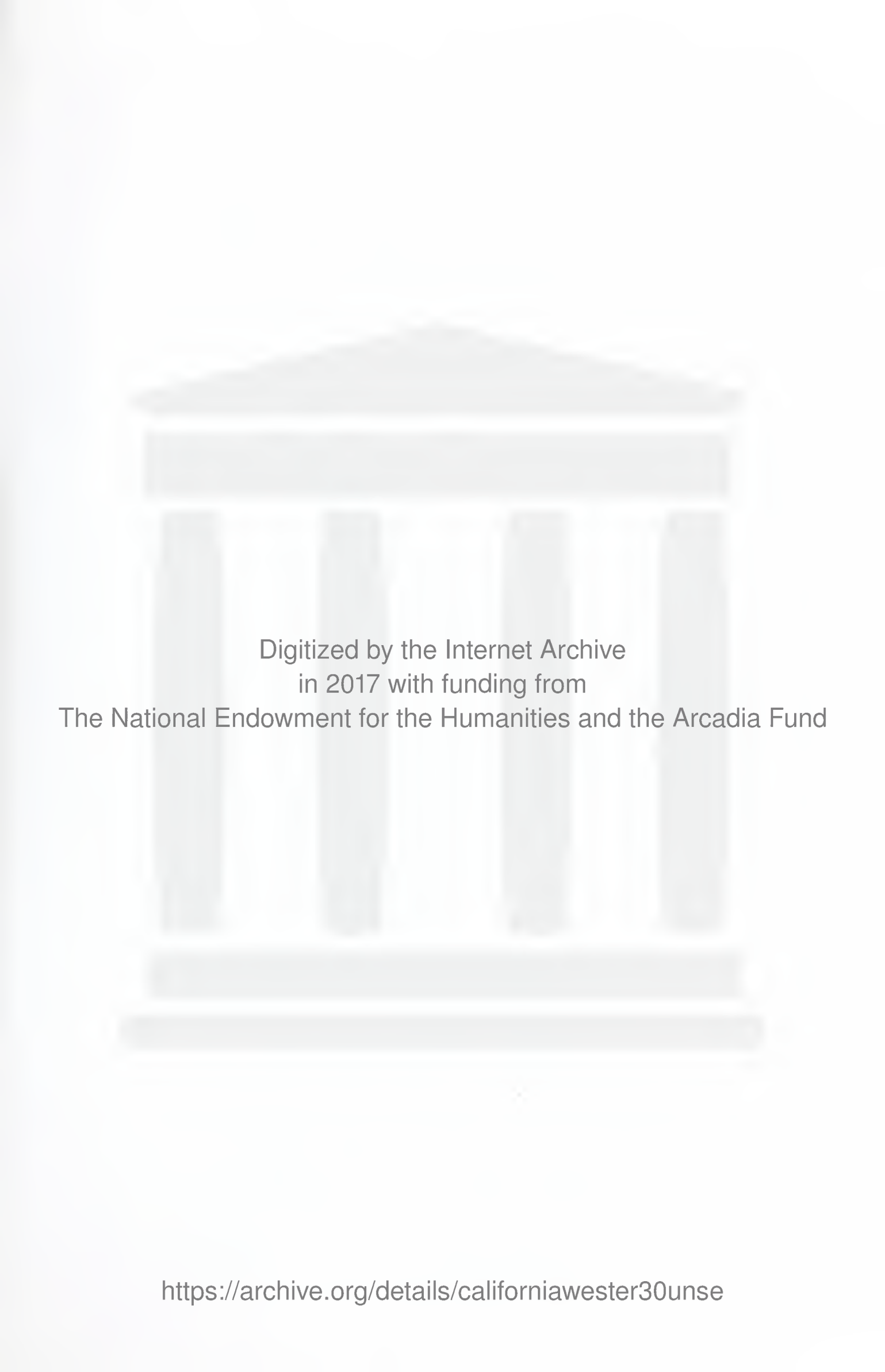
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Add.—Address.

Or.—Original Article.

C. R.—Case Report.

B. M.—Bedside Medicine.

Ed.—Editorial.

M. T.—Medicine Today.

C. N.—Clinical Notes.

L. M. H.—Lure of Medical History.

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TREATMENT OF INJURIES OF THE HAND*

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DISCUSSION *by George Warren Pierce, M. D., San Francisco; Harlan Shoemaker, M. D., Los Angeles.*

THE work of examining and reconstructing many crippled hands, largely in the field of industrial injuries, has impressed me with certain aspects of the early treatment of hand injuries that determine success or failure in the end-results. These critical points I will attempt to emphasize.

In the primary treatment of lacerated and crushing wounds the value of excision of all traumatized tissue, which is popularly termed *debridement,* is thoroughly established. A wound undebrided and left with a traumatized and dirty surface is destined to go through a stage of infection and sloughing, which prolongs the time of disability and by the excess of infection jeopardizes the hand. The object in debriding is to excise all damaged and infected tissue. The wound should be sterilized with tincture of iodin before and after the debridement. The field should be rendered bloodless by a tourniquet so the tissues can be seen intimately and so that infection will not be carried about by sponging. Curved, double-pointed scissors with thin, flat blades facilitate the excision.

If the debridement is thorough, the wound, which is now lined with only clean healthy tissue, may be closed by suture, using a small drain to prevent collection of blood and serum if indicated. When there is doubt as to the thoroughness of the debridement the stitches may be placed far apart and drainage may be encouraged by a warm compress of boric solution with one-half per cent of sodium citrate. The latter is added as it keeps the vents open for drainage by preventing coagulation of lymph.

If the wounds are too dirty or overly traumatized they should be only partially closed or left open. Antitetanic serum should not be forgotten, especially in puncture wounds which furnish anaërobic conditions.

If a *joint* is open careful debridement will usually allow primary closure and thus save the joint. The joint should be closed even if a small skin flap is necessary to cover it in.

Severed nerves in fingers and hands, due to their importance, should not be overlooked. Primary suture of these is not advisable, as the healing of traumatized wounds is usually not 100 per cent perfect, just as the scars from sutured lacerations are broader and more cicatricial than those after clean surgery. In the repair of sutured nerves the quality of the healing is no exception.

Considering that after nerve suture one must wait a year or more for regeneration to be complete, and that the amount of regeneration that will be obtained is directly dependent on the degree of perfection of the union of the severed nerve ends, the patient is entitled to the best union that can be obtained. Therefore nerve sutures are best done in secondary operations under perfect aseptic conditions and when they are not under the effect of recent trauma. After a fresh injury the ends of the nerves should merely be joined by one stitch of fine catgut, so they will remain unretracted and in apposition for future accurate suturing.

Severed tendons present a different problem. Primary suture of tendons has two advantages over secondary suture, in that the tendon sheath is still present and the tendon ends can be drawn together. In late cases the sheath becomes obliterated in the gap between the tendon ends and the proximal tendon end is always retracted by the contracted muscle. It is possible, therefore, to unite a tendon within a finger immediately after an accident while it is not possible to do so with success in a secondary repair. This is because in the latter adhesions will form about the tendon repair at the site where the sheath has been obliterated and the muscle will have become so permanently contracted that the tendon ends cannot be approximated. To succeed in the primary suture of a tendon within a finger requires normal, clean tissues, and a special and exacting technique. Unless these conditions are present it is better to let the tendon alone when it is severed within a finger for a later surgical repair.

If in primarily uniting severed tendons in the hand or forearm too much time, trauma and suture material are used and debridement is omitted or carelessly done, infection will follow and the result will be disastrous. The wound will all break down and be worse than ever; segments of tendon will slough out, and if silk is used, suppuration will last for months until the silk is extruded. Therefore if conditions are not so that the primary repair can be done right, severed tendons are best left unsutured.

When crippled hands come for reconstruction it is usually better if primary repair of the tendon had not been attempted, as the large amount of scar tissue that is generally left will greatly de-

* Read before the San Francisco County Medical Association, January 17, 1928.

tract from success in reconstructing. However, if the original debridement can be well done and the proper technique can be used, primary repair of tendons in the hand and forearm is advisable. If one is certain of his technique and the conditions are favorable, silk may be used, preferably Turner's braided silk No. 3. It is well to dip it in bichlorid solution to inhibit germ growth. Usually, however, chromic catgut is preferable as it is absorbable. If one uses a minimum amount of suture material and of trauma the chances of infection will be lessened.

A tendon should never be sutured after twenty-four hours have elapsed, even if the wound appears clean, as by that time each germ will have multiplied to many millions and infection is inevitable. Even within twenty-four hours if a smear from the wound shows cocci or an excess of pus cells the tendon should not be sutured.

Postoperatively after suture of flexor tendons the wrist should be kept in strong flexion for a month, so that the muscles will be robbed of their force but will still allow the fingers to move through full amplitude.

Fractured phalanges and metacarpals when united in faulty position greatly interfere with the mechanics of the joints and tendons, and so should always be placed in correct position early. Fractured ends that project toward tendons bind the tendons in callus. After a fracture tendons should be moved early to prevent the adhesions that will result from their contiguity with traumatized tissue. Gutter splints are useful for phalangeal fractures and if of aluminum will transmit the x-ray. A safety-pin splint is useful in straightening angulation. For metacarpal fractures, plaster casts, sheet metal splints, or rounded splints for gripping are advisable. Frequently, for phalangeal fractures, traction will be necessary and this can be accomplished by adhesive plaster, celluloid or resin glue on the finger, a wire through a hole in the finger nail, or a tiny pair of tongs in the distal end of the middle phalanx. Countertraction may be obtained from a cock-up splint, from a plaster cast on the hand and forearm, or from a wire splint so bent as to rest on the adhesive covered webs between the fingers. If the other fingers are held in the same position as the fractured one, the tendon in the injured finger will not have a chance to angulate the fracture.

Fractures of the *carpal bones* usually unite, with the exception of that of the scaphoid. Even the latter, if in exact position, will generally unite in three months if the cast immobilizes the hand, lower part of the forearm and full length of the thumb, with the thumb in strong abduction. This jams the broken surfaces together and holds them immobile, just as in the abduction method of treating a fracture of the neck of the femur. If not in perfect position, or if primary union does not take place, both fragments should be removed without further delay.

In *amputating fingers* the scar should be placed posteriorly, and if through a joint the cartilage should be shaved off. If left, the skin may be too movable and infection if present will be greatly prolonged. Hypersensitive neuromata in finger stumps are so common that the two nerve ends should be trimmed short and always be injected with alcohol so as to prevent the growth of the axones.

If the heads of the metacarpals of the long or ring fingers are amputated the axes of the contiguous metacarpophalangeal joints will rotate toward each other, so that the fingers will cross over each other when flexed. Therefore if either of these heads needs removal the whole of the metacarpal should be removed. A tendon should not be attached to a finger stump, as it will then be impossible to close the fist, because the common muscle will thus be prevented from pulling the tendons of the other fingers. Therefore let the tendon go free to form its own attachment.

It is not advisable to attempt to build up a finger stump by a dressing of clotted blood, as such a stump is scirrhotic and not workable. If the bone does not project and the skin is too short for closure, the stump may be closed by an immediate Thiersch graft, and where the bone projects the immediate application of a pedicle skin-graft will give a longer finger. A stump with a good soft termination, however, even if the finger is shortened by trimming the bone, is better for work than is one that is scirrhotic and painful.

HAND INFECTIONS

Statistics show that most of the severe infections come from trivial wounds done in light forms of work, and that 90 per cent of them reported for treatment late. Serious injuries usually have medical aid at once and so escape. Severe infections can largely be avoided if injured workers report early to a doctor or trained nurse for even trivial injuries. Early applications of tincture of iodin have reduced infections 38 per cent, and radical early treatment is the most economical for all concerned. Most bad infections also have been treated for a long time ambulatorily and by inadequate incisions. All severe infections, and especially those of tendon sheaths or fascial spaces, should be placed at once in a hospital and there operated upon under general anesthesia, with the ischemia of a tourniquet. Incisions should be adequate and chosen with a thorough knowledge of the anatomy of the paths of infection and the sheaths and spaces in the hand.

As much definite knowledge of infections of the hand has been available for fourteen years we should be familiar with the boundaries of the various spaces where pus collects, the definite pathways along which it travels, the diagnosis of each, the best surgical approaches and the means of preserving function.

A *felon* in the pulp of a finger cannot be drained through a median incision, as the pus will continue to point to the sides dorsally. The incision should open the finger like the mouth of an alligator and with the scar away from the tactile surface and with care not to puncture the thin membrane separating the pulp space from the

tendon sheath. If the pus has remained under pressure the distal two-thirds of the phalanx will have become necrotic, because distention in the pulp space robs it of its blood supply. If so, it should be snipped off. The epiphysis is outside of the space and generally lives.

A *paronychia* usually persists because the white moon of the nail, which is a space (we might call it the ungual bursa), is infected and the base of the nail acts as a foreign body. Two lateral incisions made under ethyl chlorid should be at the very depths of the creases at the sides of the nail where it curves strongly. After removing the nail, daily packing of gauze with ammoniate of mercury ointment should be kept in the very depths of the fold under the dorsal flap. Healing will be complete in two weeks.

Hand infections require careful diagnosis, just as do infections within the abdomen, and usually yield at once to proper surgery.

If the hand before us shows a soft, edematous, red, painful swelling and red lines run around to the dorsum and up the arm—those from the ulnar side of the hand to the epitrochlear gland and those from the radial side on up to the axilla—the case is one of *lymphangitis* and differs in treatment from all other types of hand infections. It may start from a small superficial infection, but its main area of redness is of soft edema and it lacks the firm and indurated feeling characteristic of pus. Such a hand should be opened only at the small original focus and be promptly treated in a hospital with large wet compresses. The whole should be wrapped in a blanket with hot-water bags inside. These infections are dangerous, but usually twenty-four hours of this treatment will place the infection under control. Incisions in simple lymphangitis are unnecessary and harmful. When abscesses form at the lacunae of the lymphatic vessels, or in the case of lymphangitis of the deeper tissues, indurated plaques of cellulitis are formed, then and not before, should incisions in the indurated areas be made.

If our case is one of infection in the *tendon sheath* it is diagnosed by general swelling of the finger which will be held in slight flexion, as voluntary movement is painful. Passive extension will be impossible on account of pain. There is fever, and over the tendon sheath is extreme tenderness, with its maximum at the proximal end of the sheath over the head of the metacarpal. Incisions should be midlateral in the finger and, to avoid cutting the pulleys which are opposite the phalanges, should be opposite the joints. In the palm, the proximal end of the sheath should be opened.

Thenar space infection is recognized by the great ballooning of the thenar eminence, by direct tenderness and by noting the source of the infection to be in the index finger or thumb. This space is opened along the flexor crease of the thenar eminence and dorsally in the first cleft radial to the first interosseus muscle. Care should be used not to sever the nerve to the radial side of the index finger or the small motor thenar nerve on which the power of opposition of the thumb depends.

Pus in the *middle palmar* space gives local tenderness and bulging of the palmar area which is normally concave. The source is usually in the long, ring and little fingers subcutaneously or in their sheaths. The fingers whose tendons run through the infected thenar or middle palmar spaces are held semiflexed and if passively extended cause pain, thus differing from tendon sheath infection, in which the patient will not even allow extension. The incision is L-shaped partially following the creases in the palm until through the palmar fascia and from then on longitudinally by blunt dissection so as to protect the nerves.

From the palmar space or sheath of the little finger pus extends to the *ulnar bursa* which runs to just above the wrist. Pus from the thenar space or sheath of the flexor tendon of the thumb or index finger extends to the *radial bursa*. The two usually communicate. The wrist is then held fixed and with infection of the ulnar bursa there is extreme tenderness in the palm an inch and a quarter proximal to the ring finger.

From these two bursae, and especially the ulnar, within two days pus will extend to the large quadrilateral space in the forearm. This holds eight ounces and lies between the profundus tendons in front and the pronator quadratus muscle and interosseus ligament behind. There is swelling, starting above the annular ligament of the wrist. The space is opened by lateral incisions in the forearm an inch above the wrist and just anterior to the radius and ulna. The pus follows up the ulnar artery and median nerve and may necessitate a second opening higher in the forearm between the ulnar artery and the flexor ulnaris muscle.

In a finger the partition between the *middle finger joint* and the sheath of the flexor tendon is thin, and frequently infection from the sheath infects this joint and also causes osteomyelitis of the *middle phalanx* by entering at the epiphyseal line. Conversely also the sheath becomes infected from the middle finger joint.

Infection in the *carpus* is detected by the pain and grating on movement and by a dorsal swelling in the normally concave area between the insertion of the extensor tendons of the wrist and the extensor communis tendons. Aspiration here yields pus. If from simple drainage the condition does not promptly yield, it is usually best to remove all the carpal bones.

The *dorsum of the hand* is normally so swollen from palmar infection because of the loose tissue that it is often unnecessarily incised. Only occasionally are its two spaces, the subcutaneous and beneath the tendons the subaponeurotic space, infected and then they should be drained laterally.

In the hand at the *web* between the fingers a pad of fat anterior to the palmar fascia communicates with another pad posterior to this fascia, and

as infection from one extends to the other, both spaces should be opened.

In the hand pus normally *travels in a serial way*—from flexor tendon sheaths in the finger to fascial space in the palm or to the middle finger joint and middle phalanx—from subcutaneous regions in the finger through the lumbricali canal to the palmar space—from sheaths of the little finger and thumb to the ulnar and radial bursae and to each other, and from these and the palmar and thenar spaces to the deep quadrilateral space in the forearm. From the original site we know where the infection is likely to travel and can forestall it.

Wrist and finger joints are held stiffly if pus is near them, and tendons are painful on movement if running through a pus-filled space and extremely so if through an infected sheath. Accurate outlining of tenderness is useful and so also is differentiating between edema and induration. Tenderness and pain diminish in a few days, as the tissues become pus-soaked.

SUMMARY

Incisions should be well chosen and of adequate size. We should not sever the pulleys in the fingers, nor cut the nerves in the fingers or palm, especially the motor thenar nerve. The most pernicious incision, and unfortunately the one usually made, is the median longitudinal one, whether in the palm, wrist, finger, pulp, matrix, or the dorsum of the finger. It wrecks the hand, causes flexion contractures by being at right angles to the flexion creases, cuts the pulleys, places roughening and adhesions along the worst place, namely, the gliding surfaces of the tendons, and is poor for drainage. In fingers, incisions should be midlateral and not anterolateral, as are often pictured, where they will cut the nerves, and they never should be in the midline. In the hand they should follow as much as possible the natural creases.

Drains should not be left in longer than two days, and large, hot compresses of boric acid solution with one-half per cent sodium citrate, together with local and bodily rest, should follow. If kept too long hot compresses overstimulate granulations and cause adhesions. After about a week baths are used. These help active motion which should now be encouraged. Antiseptic chemicals should be avoided as they kill the tissues as well as the germs. Precautions should be taken in using compresses or baths not to transmit virulent germs from one patient to another. Also the skin surrounding a wound should be kept free from crusts and piled up epidermis by curetting and cleansing so it will be clean even down to live tissue which can protect itself. Otherwise germs will breed in the surrounding débris and keep the wound infected. As healing progresses the hand should be kept, when not exercising, in a functionating position by splints, with the wrist cocked up, the proximal finger joints flexed, and the thumb in opposition.

In the treatment of hand injuries certain prevalent mistakes should be emphasized:

Do not suture a traumatized wound without debriding.

Do not incise the hand without the intimate vision gained by using a tourniquet, as clean spaces and sheaths may be opened to infection and nerves and other important structures may be cut.

Do not traumatize the tissues of the hand, as it clogs working parts with cicatrix.

Never be guilty of making the pernicious median longitudinal incision.

Never cut nerves in the fingers and palm, and especially the thenar nerve.

Infection is almost inevitable if tendons are sutured more than twenty-four hours after an injury.

Do not neglect to diagnose exactly an infection in the hand.

Do not treat a sheath or space infection, or a case of lymphangitis, in an office.

Do not use local anesthesia on infections except just in the line of the incision, as it spreads infection.

Do not make inadequate incisions for infections.

Always keep joints in functionating positions during healing.

516 Sutter Street.

DISCUSSION

George Warren Pierce, M. D. (490 Post Street, San Francisco).—This masterly paper is of the utmost importance to all members of the profession who at any time are called upon to repair an injured hand or to treat an infection of the upper extremities.

Far too little importance is attached to hand injuries by the average practitioner, and lack of knowledge of *all* the finer points of technique analyzed in this paper will result in permanent loss of function in the hand, that delicate and beautifully balanced mechanism. Commonest sins of omission are the *immediate* debridement, failure to reorganize severed tendons, and improper opening of infections of the fingers and the palmar spaces. I can agree with Doctor Bunnell almost without exception in every detail as to his methods of treatment.

I again urge a complete and careful study of this paper, to the general practitioner, as it is to him that a large number of these injuries and infections come, and on his judgment at that time so much depends on the ultimate result.

Harlan Shoemaker, M. D. (1930 Wilshire Boulevard, Los Angeles).—The debridement of crushing wounds of the hand with laceration is most excellently set forth in this paper. The necessity of curved, pointed, flat scissors which will cut to the points will never be more appreciated by the operating surgeon than in cases of this type.

Tetanus serum adds very largely to the safety of the patient's life, and in doubtful cases repetition of the dose in seven days is good prophylaxis.

The immediate closure of open joints without drains is essential to the restoration of full function in the joint. Also by the primary suturing of nerves and tendons, even though infection occurs in these cases, contracture is prevented and subsequent stretching of the nerve or tendon is eliminated. Triple 0 plain catgut suture material is as efficacious as nonabsorbent mate-

rial. The profession has been too slow in taking up the use of finer suture materials. As the contraction of tendons is greater than nerves, the flexion of the joints adds very materially in overcoming this temporary defect.

The treatment of injuries to the hand, particularly in the injuries to the metacarpals, is most excellently brought out. The particular stress laid on the early treatment in minor injuries to the hand is important, and the method and care of a debridement of the wounds is most clearly elucidated.

I am impressed that in an infection of the finger nail no deformity will follow or remain after the removal of the nail if the matrix has not been injured.

Great stress has been laid on the care of opening abscesses of the hand and preservation of the nerve supply. This is particularly important as the nerves are mostly sensory in type and their destruction is followed by great disability and atrophy of the hand which largely impair its function.

Attention has been called to the site of opening palmar abscesses as the lateral side of the tendon sheath. The paper clearly points that the sheath and tendon are not involved and if the operating surgeon is careful, infection will never be carried into this anatomical structure.

The use of local anesthetic at some distance from the area of infection for the purposes of nerve block is a recommendation that all may profitably follow.

The use of heat in the stimulation of tissue repair or absorption of exudate and transudate is very important, but should not be excessive and cook the tissues. Neither should antiseptics be so strong as to be escharotic. Inasmuch as the hand may be worth from $1800 to $25,000 a year to the injured patient, Doctor Bunnell wisely recommends early hospitalization in hand cases. This is worthy of more emphasis; there is so much to be gained, and everything to be lost.

SUBACUTE BACTERIAL ENDOCARDITIS*

PART I

By Ernest C. Dickson, M. D.
San Francisco

WE learn from the medical dictionary that the term "endocarditis" means inflammation of the endocardium, whether it be the endocardium which lines the walls of the heart chambers or that which covers the valve cusps. It is obvious that it does not include the large group of lesions which are commonly called chronic endocarditis, in which there is inefficiency of heart function because of distorted heart valves, the result of healing of an inflammatory process which has ceased to be active. It is unfortunate that the use of the term "endocarditis" in this sense has become so general because it misleads as to the actual pathology which exists in the heart, and it necessitates specific definition whenever the word is used. One does not speak of a deformed extremity, the result of healing of a fracture with the bone fragments in malposition, as a chronic fracture, nor of the deformity which is produced by contracture following healing of an extensive burn as a chronic burn. It is no more logical to speak of deformed heart valves in which there is no active inflammatory process as chronic endocarditis, and in this report such lesions will be described as chronic valvular disease or healed endocarditis.

Again, when one discusses bacterial endocarditis, one must exclude all cases in which the disease of the endocardium is not of bacterial etiology. The most obvious group of this type is that in which the infecting organism is the treponema pallidum, but there is some question as to whether rheumatic endocarditis should not also be excluded. Despite the claims of Poynton and Payne [1] as well as of Coombs [2] and other authors, it is not definitely established that the endocarditis of rheumatic fever is of bacterial etiology, but for the sake of completeness it has been included in the proposed scheme of classification because it illustrates a peculiar type of endocarditis which may be of bacterial etiology.

The terms "acute," "subacute," and "chronic" are also commonly used in ways which are confusing. They may be used to indicate elapsed time, that is, the duration of illness, but they may also indicate the intensity or type of the inflammatory reaction in the tissues. It is true that there is often a close relationship between the duration of the illness and the intensity of reaction, but this is not constant in bacterial endocarditis. Wauchope [3] in a recent report states that in her series it was impossible to draw clean-cut lines between acute, subacute, and chronic infective endocarditis, either on clinical or pathological lines, and she adopted a time differentiation in describing her cases. She considered as acute all cases in which the clinical course was less than three months, unless—and this is important—there was postmortem evidence of organization of the vegetations on the valves, scarred infarcts, etc., in which case she classified them as subacute without regard to the duration of illness. Cases of from three to six months' duration she classified as subacute, and those of more than six months' duration as chronic.

Although this question is open to difference of opinion it would seem to be preferable to classify in terms of virulence of infecting organism and degree of reaction to infection, and in this report the terms, "acute," "subacute," and "chronic" are considered from that point of view. No differences in the duration of the illness are implied.

With these points in mind the following scheme of classification is proposed. It is not perfect, but may have some merit in that it emphasizes the virulence of the infecting organism and basic pathological processes as the indices for differentiation.

CLASSIFICATION

Bacterial endocarditis is an active inflammatory process caused by infection with bacteria in which the endocardium is the seat of the disease. The heart muscle is always, and the pericardium is usually, coincidentally affected in some degree. It adds much to the clarity of description if the name of the infecting organism is added, thus, acute pneumococcus endocarditis, subacute nonhemolytic or anhemolytic streptococcus endocarcarditis, and other conditions.

A. Endocarditis caused by infection of low virulence:

The inflammatory process is productive or proliferative and not destructive, and the tendency is to local healing and clinical recovery. Rheu-

* Part II of the paper will appear in the February issue of this journal.

TABLE 1.—*Relative Duration of Illness Among Cases of Bacterial Endocarditis*

DURATION	Pneumococcus Thayer		Staphylococcus aureus, Thayer		Gonococcus Thayer		Other Streptococci, Thayer		Streptococcus viridans, Thayer		Streptococcus viridans, Dickson and Cooke	
	CASES	%	CASES	%	CASES	%	CASES	%	CASES	%	CASES	%
0-1 week	6		8		0		16		0		0	
1-2 weeks	7		6		0		7		1		0	
2-3 "	7		5		2		5		1		0	
3-4 "	3		3		7		4		2		0	
	23	82.1	22	84.6	9	39.1	32	74.8	4	8.7	0	0.0
1-2 months	3		0		6		2		4		5	
2-3 "	1		1		4		2		1		9	
3-4 "	0		0		1		1		7		6	
4-5 "	0		2		1		2		7		7	
5-6 "	1		1		0		1		6		10	
	5	17.8	4	15.3	12	52.1	8	18.8	25	54.3	37	56.9
6-7 "	0		0		0		1		5		2	
7-8 "	0		0		1		0		1		1	
8-9 "	0		0		1		1		2		3	
9-10 "	0		0		0		1		4		3	
10-11 "	0		0		0		0		0		1	
11-12 "	0		0		0		0		2		2	
	0	0.0	0	0.0	2	8.7	3	6.4	14	30.4	12	18.5
Over 1 year	0		0		0		0		3	6.5	9	13.8
Unknown											7	10.8
TOTAL	28		26		23		43		46		65	

matic fever endocarditis is of this type, and it is unusual if a patient dies during the active stage of the disease unless there is mixed infection. In the process of local healing, however, there may be distortion and shrinkage of the valves resulting in permanent incompetency, even when actual healing is complete. It is because of the extra strain upon the myocardium due to the incompetent valves, and not because of progressive inflammatory processes in the endocardium, that cardiac failure may eventually develop.

B. Endocarditis caused by infection of moderate virulence:

There is considerable variation in the degree of virulence and in the duration of illness in this group, some cases being of a septic type with widely swinging temperature and frequent chills, while others run an uneventful course with low fever, no chills, and no signs of virulent infection. From the standpoint of pathology the process is progressive and is more or less destructive, but there is no rapid suppuration and there is a tendency to local healing behind the active process. Some authors, notably Libman,[4a] have described clinical recovery in a few instances, but all agree that the majority of patients die after a progressive course of from three months to a year after clinical diagnosis is possible.

Streptococcus viridans and *Bacillus influenza* † are the etiological factors in the vast majority of cases of this group, but a few cases of infection with gonococcus and, more rarely, with other types of streptococcus and pneumococcus may closely simulate this type in clinical course and pathological process.

C. Endocarditis caused by infection of high virulence:

The pyogenic bacteria, pneumococcus, staphylococcus, gonococcus and streptococcus pyogenes, are responsible for cases of this type, and in the great majority, with the possible exception of gonococcus endocarditis, the process is truly malignant and of relatively short duration. In most of these cases the endocarditis is not primary but is secondary to or metastatic from primary infection elsewhere, puerperal sepsis, pneumonia, osteomyelitis, etc. The process is typically destructive, there is no tendency to heal in the majority of cases and the progress of the disease is rapidly fatal, few patients surviving for more than a few weeks.

Table 1 shows the relative duration of illness in endocarditis of Groups B and C. Those produced by pneumococcus, staphylococcus aureus and "other" types of streptococcus are rapidly fatal; those caused by gonococcus occupy an intermediate position, and those caused by streptococcus viridans are the least rapidly fatal.

The material upon which this study is based consists of sixty-four fatal cases of subacute streptococcus endocarditis; twenty-six in which diagnosis was made from the clinical course of the disease and positive blood culture, and thirty-eight which came to necropsy. The series does not include a number of cases in which clinical diag-

†At least two cases have been reported in which Brucella abortus was isolated from the lesions at necropsy. These raise the question as to whether those described as being due to infection with Bacillus influenza may not have been caused by Brucella abortus.

nosis was not confirmed nor seventeen necropsy cases which fall under Group C of our classification. All of the cases occurred in the Stanford medical services at Lane Hospital and the San Francisco Hospital, or were private patients who were seen in consultation by the author or for whom the bacteriological examinations were made by him. With two or three exceptions, all blood cultures were taken by him or by his assistants, and all necropsies were performed by Doctor Ophüls or his associates.

All of the positive blood cultures showed growth of anhemolytic streptococci, seventeen of which were classified at the time as viridans. It is probable that some of the others may have shown green pigment, but they were studied before the viridans nomenclature was introduced into the laboratory.

INCIDENCE

The incidence of this disease is probably greater than is usually believed. Libman [4b] states that 0.3 per cent of persons with chronic valvular disease die of subacute bacterial endocarditis, and Horder [5] found that one in every one hundred and seventy-three patients in his ward service suffered from this disease. There is some question as to whether the disease is becoming more common, but the question cannot be answered from this small series. Cotton [6] recorded that 8 per cent of invalided soldiers with gross valvular lesions had subacute bacterial endocarditis, and Morawitz [7] stated that it had been observed more frequently in Germany since the war. The most recent data on this subject are those of Wauchope,[3] who found that in London hospitals the disease became much more common immediately after the war although the increase was due to the incidence in ex-soldiers, whereas that among civilian males and females remained unchanged.

Forty-eight males and sixteen females, respectively 75 and 25 per cent, made up our series. This corresponds fairly closely to Blumer's series [8] of three hundred and twenty-eight collected cases in which 60 per cent were males and 40 per cent were females. There is nothing in our records to suggest racial susceptibility, but in Thayer's series at Johns Hopkins Hospital [9] there is evidence that negroes are especially susceptible to gonococcus endocarditis which may simulate the viridans type in some degree.

Forty-four of our patients, 71 per cent of those in whom the age is recorded, were between twenty and forty-nine years of age, five were between ten and nineteen, and six were over sixty. Taking for comparison the incidence between ten and forty-nine, our series shows 79.3 per cent as compared with 86 per cent in Blumer's series.[8]

Among the predisposing causes, chronic valvular disease of the heart appears to play an important part although the reason for this is not clear. It is suggested that in healed endocarditis the vascular arrangement is such as will favor the lodging of small emboli and thus determine the focus of new infection. Eighteen patients in our series gave a history of one or more attacks of rheumatic fever, and one of chorea. Seventeen gave history which indicated old, mostly long-standing, heart lesions and one, the youngest in the group, had a congenital heart lesion.

ONSET

The majority of records contain no reliable data as to the immediate source of infection, but in our series the beginning of the terminal illness occurred in three patients immediately after the extraction of abscessed teeth, in one during convalescence from an acute infection which was diagnosed pneumonia, in one after curettage in a woman who had induced an abortion two years before and had had persistent vaginal discharge since then, and in one following an infected finger. At least ten patients stated that they had caught a severe cold or had "influenza" several weeks or months before and had not been able to regain their strength. One very interesting case in this last group was a young woman who for three years had shown typical signs and symptoms of Addison's disease, which, incidentally, was proved at necropsy to be associated with extensive tuberculous lesions in the adrenals. About eight months before admission to hospital she had an attack of "influenza" after which she was unable to work, and lost ground rapidly. One patient who was pregnant had recurring attacks of bronchitis, tonsillitis and arthritis during pregnancy and died before reaching term.

A number of cases were found at necropsy when clinical diagnosis had not been made. The most interesting of these was the case of a woman who had had diabetes for several years and who entered the hospital in coma. She responded fairly well to insulin but collapsed suddenly and died when insulin was discontinued.

The lesions of the patient who had Addison's disease conformed to those of Libman's [4a] terminal cases in that there were no signs of embolism and no bacteria were found in smears from the lesions on the heart valves, but in the other case, the patient with diabetes, smears from the heart-valve lesions contained streptococci and there were many recent infarctions in the kidneys and spleen.

PATHOLOGY

The pathology of subacute bacterial endocarditis must be considered from three points of view:

1. The changes in the heart.
2. The changes due to long-standing infection.
3. The changes due to embolism.

The heart may be of normal size, or may be large, particularly in those cases in which there has been aortic insufficiency of long standing. There may or may not be hydropericardium, but in our series the amount of fluid was never very great. Usually the pericardium is smooth, and often studded with petechiae, but in five cases there was fibrinous pericarditis, four general and one localized, all of them associated with aortic valve lesions. No perforations through the heart wall were demonstrated, but it seems quite probable that the pericardial process was secondary by extension from the lesions at the base of the heart.

The heart muscle is usually opaque and may have necrotic areas if there has been embolism

Fig. 1 (Case 29—57).—Note the deep lesions at the aortic orifice and the fibrinous pericarditis.

Fig. 2 (Case 18—166).—Note the involvement of the mitral valve with extension to the chordae tendineae.

Fig. 3 (Case 16—205).—Note the lesions on the proximal and distal mitral cusps, the chordae tendineae, the aortic cusps, and the wall of the ventricle.

into the coronary arteries, but ordinarily it is fairly firm and does not show extensive signs of tissue degeneration.

The endocardium, however, shows very extensive and very characteristic lesions. They are involvement of the valves, of the chordae tendineae and sometimes of the tips of the papillary muscles, and of the mural endocardium. The lesions in the valves tend to be proliferative rather than destructive and the typical vegetation is a firm, fibrinous mass, sometimes small and sessile, at other times large and polypoid or even massive. There may be extensive destruction of the flaps of the valves and there may be aneurysms or perforation of the valves; in fact, the common coincidence of aortic and mitral valve lesions is often due to perforation of the large flap of the mitral valve and extension of the process on the surface opposite to that bearing the initial lesion. The vegetations may be pale or pink in color and there is always an attempt at healing at the base. The extent of healing varies greatly, and Libman[4c] has reported cases in which it has been complete. In our series there have been the usual variations in degree, often with calcification at the bases of the vegetations, but in one case there was evidence of an old extensive process of the mitral valve, involving the chordae tendineae and the tips of the papillary muscles, which was entirely healed; the terminal acute illness was associated with a large, recent mural involvement in the right auricle.

Libman[4a] emphasizes the fact that the vegetations of the subacute type are usually larger than in rheumatic fever, and that there is absence of the typical Aschoff bodies in the myocardium. There are, however, so-called Bracht-Waechter bodies in subacute cases, round cell interstitial lesions which occur in the myocardium. There is usually no evidence of pus formation in lesions caused by emboli in the coronary arteries. The characteristic incidence of the disease in adult life would indicate that in the majority of cases the lesions are of the valves of the left side of the heart, and this is in fact the case. A survey of our series shows approximately the same distribution as was found by Blumer[8] in his survey of the literature, and is in sharp variance with the distribution in rheumatic endocarditis where there is a high incidence of tricuspid involvement.

Extension to the chordae tendineae occurred in nine of the twenty-nine cases in which the mitral valves were involved, and there was involvement of the mural endocardium in nine. In one instance the only involvement of the right side of the heart was an extensive mural vegetation which was secondary to, and directly continuous with a lesion in the left ventricle which had perforated the interventricular septum.

The manifestations of general infection are varied, the most important being enlargement of the spleen, secondary anemia and cloudy swelling of the parenchymatous organs. There is a tendency to diffuse hemorrhages in the serous surfaces and in the skin in addition to the presence of petechiae which are embolic, and one of our patients showed pachymeningitis interna hemor-

Fig. 4 (Case 28—55).—Note the lesions of the aortic cusps and the extension to the wall of the ventricle.

Fig. 4 (Specimen 52—24).—Note the healed lesion on the mitral valve and the active process on the wall of the auricle.

TABLE 2.—*Distribution of the Active Processes in the Heart in Subacute Bacterial Endocarditis*

Valves Affected	Dickson and Cooke 38 Necropsies		Blumer 150 Necropsies*	
Mitral valve only	13	92.1%	58	89.0%
Aortic valve only	6		16	
Mitral and aortic valves	16		56	
Pulmonary valve only	–		4	
Tricuspid valve only	1		3	
Mitral and tricuspid valves	–		1	
Aortic and tricuspid valves	–		3	
Aortic and pulmonic valves	–		1	
Mitral, aortic and tricuspid valves	1		4	
Chordae tendineae affected	9			
Walls of chambers affected:				
Left auricle	4			
Right auricle	3			
Left ventricle	4			
Right ventricle	2			

* Collected from the literature.

rhagica for which no local cause could be determined. The spleen was enlarged in twenty-five of our necropsy series.

As already stated, there are often showers of petechiae in the skin and conjunctival membrane which are caused by minute emboli, and similar minute emboli may lodge in the glomerular tufts in the kidneys to cause the characteristic glomerular nephritis of Löhlein[10] and Baehr.[11] Among thirty-nine clinical records which were available, nineteen recorded petechiae and in our necropsy series glomerular nephritis was recorded nineteen times. The distribution of the glomerular lesions is scattered; Gaskell[12] has described the appearance of the kidney as "flea-bitten"; and the total kidney function may not be much impaired. However, there is usually also a parenchymatous degeneration of the kidney epithelium, and if one carefully examines the urine one will find albumin, casts and red blood cells in most cases.

Embolism due to larger fragments than produce petechiae and glomerular lesions are very common, and occurred in twenty-seven cases of our necropsy series. The greatest number lodged in the vessels of the spleen and kidneys, respectively fifteen and sixteen times, but seven lodged in the vessels of the lungs, five in the coronary arteries, four in the vessels of the brain, three in the leg, two in the mesenteric artery, and one each in the iliac artery and an artery of the tip of the nose. In two instances embolism was the first clinical indication of serious illness, hemiplegia being caused in one and obstruction of the femoral artery in the other. In only two instances were the metastatic lesions of a purulent nature.

SIGNS AND SYMPTOMS

Blumer[8] has briefly stated the general characteristics of the disease as follows: "The clinical manifestations of subacute bacterial endocarditis naturally fall into two periods, an early period when the symptoms and signs are those of low-grade infection and a late period when the manifestations of embolism hold the prominent place. The duration of the first period is usually impossible to determine because the onset of the disease is so insidious that the exact time at which infection occurred cannot be fixed. The onset of the stage of embolism is more readily appreciated as the emboli, even when they involve the internal organs, give rise to recognizable clinical phenomena."

A typical onset of the insidious type is illustrated by the history of a butcher, age thirty-five, who believed he was perfectly well until four months before admission to hospital, when he began to be short of breath on exertion and tired easily. Within two or three weeks he was forced to cease work and soon was so weak that he remained in bed. He had no pain, did not know he had fever and was very comfortable so long as he remained in bed. He died about four months after first noticing weakness.

Eighteen of our patients complained of shortness of breath, ten of weakness, five of chills and fever, two of night sweats, four of gastrointestinal disturbances, including loss of appetite, dyspepsia and diarrhea, two of precordial pain, four of palpitation, four of swelling of the feet, and one of arthritis. One patient had passed through normal pregnancy and was apparently convalescing satisfactorily when she suddenly developed hemiplegia three weeks after delivery. Subsequent necropsy showed that this was due to embolism.

There is no regular sequence in the development of signs and symptoms, in fact, the course as well as the mode of onset varies so greatly that it is difficult to describe a typical case. The signs and symptoms may be very obscure at first, low-grade fever, pulse somewhat increased in rate, little if any impairment of nutrition, normal blood or slight anemia, weakness and early fatigue. If the physician has known the patient to have had valvular disease of the heart, or if there is history of valvular disease, his attention is not particularly aroused by the signs of valvular insufficiency unless the murmurs differ from those which he had previously heard. Suspicion is aroused only when the fever persists, when there are recurring febrile periods with short intermissions, when there is progressive anemia, the spleen becomes palpable or petechiae appear.

In addition to the early symptoms which have been mentioned there may be chilly sensations, painful erythematous nodules in the skin, pains in the muscles or joints without local reaction, backache and smoky urine. One of our patients was not alarmed about his condition until there was sufficient blood in the urine to be macroscopically visible.

A number of patients, however, have a stormy onset, with chills and fever, extreme prostration and headache. Several cases have been diagnosed as malaria, and in one instance, a professional man who had suffered from malaria, it was at least two months before he would admit that his symptoms were different from those he had experienced during his attacks of malaria.

Symptoms referable to the nervous system are common. In the early stages there is often restlessness and apprehension which, in the absence of positive objective signs, may lead to a diagnosis of hysteria. Headache is very common, sometimes occurring early, and sometimes very

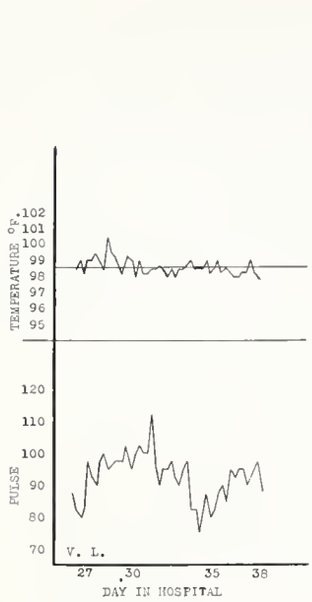
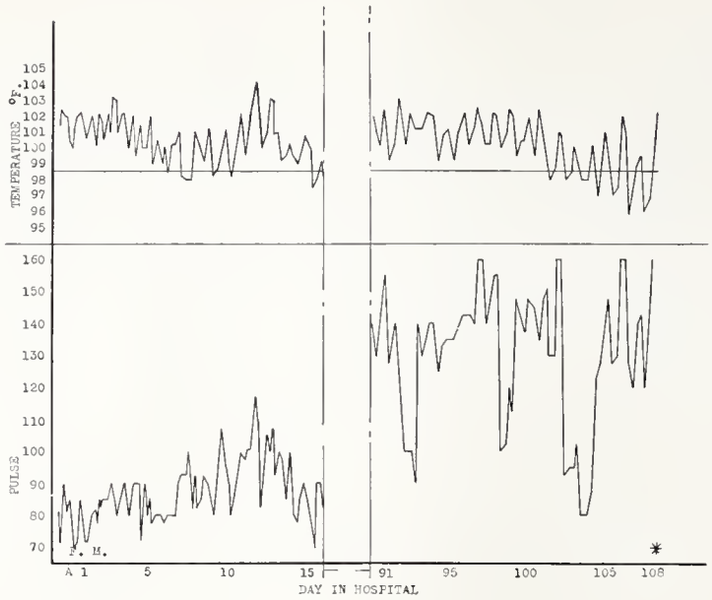


CHART I.



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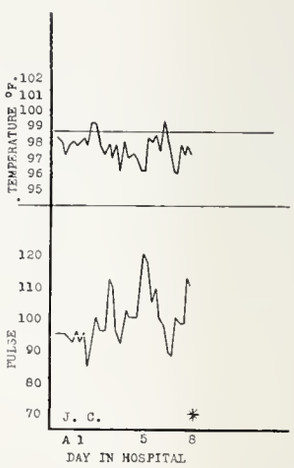

CHART III.

severe. Vertigo was an outstanding early feature in two of our cases. Many of the patients sleep poorly and become depressed, but it is surprising how many of the victims remain cheerful and confident of recovery, their only distress being that they are so weak they cannot be up and moving about. Rarely there is delirium in the terminal stages and there may be coma before death. Convulsive seizures, coma and hemiplegia may be caused by emboli and sometimes there is aphasia from embolism without signs of paralysis.

Acute meningitis is rarely seen as a result of cerebral embolism, a very striking difference from what occurs when the infectious agent belongs to the third group of our classification.

Nutrition suffers little at first and sometimes remains good throughout the disease; usually, however, there is progressive loss of weight but not to the stage of emaciation. The appearance of the skin is fairly characteristic, especially in the later stages. There is a peculiar brownish yellow discoloration, which is not jaundice, but which Libman [4d] has described as a café-au-lait tint. It differs from the lemon-yellow color of pernicious anemia, but is difficult to describe. The sclerae become progressively more pearly-white as the anemia progresses, and when petechiae appear they are especially to be found in the conjunctiva, the pharyngeal mucous membrane and the skin of the axilla, arms and chest, although they may be widely distributed. Occasionally there is true jaundice.

Examination of the chest gives little help at first unless there is a change in the character of heart murmurs which have been known to exist. Libman [4d] has described tenderness on pressure over the upper part of the sternum, but this was not at all constant in a number of our cases. There is usually some bronchitis and patients often complain of cough, but when signs of pulmonary involvement are present, they are apt to be confusing rather than helpful in diagnosis.

There is nothing characteristic in the abdomen until the spleen becomes palpable, which may be early or comparatively late in the disease. Sometimes it is enlarged when the patient first comes under observation, but at other times it is not felt for several weeks. In one patient who first became ill in November, and who was continuously under observation from early in January, the spleen was not felt until the middle of March, although his temperature was high during the whole time. The liver is usually enlarged but is not tender. In the rare instances when the condition develops upon a heart which is already verging on decompensation there may be early signs of liver engorgement.

Examination of the extremities gives little that is diagnostic unless petechial hemorrhages are present. There may be tenderness and swelling in the joints, occurring early or later, but this has been an outstanding feature in only two of our cases. The arthritis may persist or may be transient, in one of our cases it was recurrent. Blumer [8] states that sometimes streptococcus viridans may be recovered from the synovial fluid. The painful erythematous nodes of Osler [13] may be found along the shins or other long bones, but have not been at all frequent in our series.

There is no record of eye changes in our series, but in very few cases were they specifically searched for. Blumer [8] states that retinal changes are recorded in about 10 per cent of cases in which routine examination was made, and Falconer [14] found five in a series of fifteen cases in which he made special examination. Embolism may occur and there may be retinal hemorrhages. Libman [4a] states that optic neuritis may occur, sometimes resulting in optic atrophy, and he believes that it is much more frequent than has been realized.

There is no characteristic febrile reaction, the majority of cases running a low fever at first, although some have a widely swinging, septic type of fever from the beginning. Lenharz [15] believed that when the patients have septic temperature and chills the infecting organism is not streptococcus viridans, but that has not been our experience. Blumer [8] found that in the majority of cases the temperature swing does not exceed four degrees, but sometimes it may be greater. His survey also shows that among 249 patients whose records contain details, 116 had fever only, 70

fever and chills, 16 fever and sweats, and 34 fever, chills and sweats.

Some patients are afebrile, at least during the time they are under observation, and Libman[4a] points out that they may be in a bacteria-free stage and that there may be recurrence of the fever. In one of our patients there was an initial febrile period of three weeks, followed by a period of a month during which there was normal temperature, only to be followed by continuous fever for more than three months which lasted until his death. It may be said in passing that despite repeated examinations, blood culture was always negative in this case until six weeks after the onset of the second febrile period.

Still other patients, however, remain afebrile until death, as is shown in Chart 3. Unfortunately there is no record of blood culture in this case, but careful examination of smears from the valve lesions made at necropsy failed to show any bacteria.

The pulse rate in subacute bacterial endocarditis is more rapid than normal, and in patients with low temperature tends to be greater than the amount of temperature would explain. In fact, in one instance, had we paid sufficient attention to the discrepancy between temperature and pulse, it is doubtful whether we would have so readily accepted a clinical diagnosis of cerebrospinal syphilis. A few patients show irregularities or develop them during the course of the disease, but this is not the rule. The majority of patients continue to have regular pulse although the rate tends to become more rapid as the disease progresses.

A characteristic feature of the disease is progressive anemia of the secondary type which is rarely extreme. A survey of the red blood count and hemoglobin estimation of twenty-three patients taken during the last month of life is shown in Table 3. The figures compare fairly well with those of Blumer,[8] who found approximately one-third of recorded counts between three and four million with the remainder about equally divided above and below these numbers. It is surprising, however, that, despite the infection, the red blood count sometimes remains very high, above five million, and in one of our cases the cell count increased from 4,072,000 to 6,408,000 during the last two months of life, the hemoglobin increasing from 72 to 85 per cent during the same time.

There is very wide variation in the leukocyte counts. Not infrequently one of the confusing features is a leukopenia, sometimes as low as 3000 cells, which, taken with low-grade fever, strongly suggests typhoid fever. At other times the leukocyte count is very high; in our series the maximum observed was 60,000. The majority of cases, however, show leukocyte counts of from eight to fifteen thousand, and, as a rule, the polymorphonuclear increase is not relatively very great. The results of one hundred and seven counts in fifty patients is shown in Table 3.

TABLE 3.—*Summary of Blood Counts in Subacute Bacterial Endocarditis*

Red Blood Corpuscle Count on 23 Patients during Last Month of Illness		Hemoglobin		107 Leukocyte Counts on 50 Patients	
Over 6 million	1	80-90 %	2	50,000–60,000	2
5 to 6 million	–	70-80 %	5	40,000–50,000	2
4 to 5 million	6	60-70 %	3	30,000–40,000	3
3 to 4 million	10	50-60 %	4	20,000–30,000	8
2 to 3 million	5	40-50 %	3	15,000–20,000	16
1 to 2 million	–	30-40 %	4	10,000–15,000	27
Under 1 million	1	20-30 %	–	6,000–10,000	37
		10-20 %	1	5,000– 6,000	3
				4,000– 5,000	6
				3,000– 4,000	3
6,408,000		Highest Count		60,000	
900,000		Lowest Count		3,300	

The urine may be normal at first, but soon there is albumin and the sediment contains casts and red blood cells. The amount of blood is rarely sufficient to cause smokiness or a red discoloration of the urine, but it is almost always found at some time during the course of the disease. In fact, the appearance of red blood cells in the urine in febrile cases of uncertain etiology is one of the indications which should lead one to think of subacute bacterial endocarditis.

Sometimes bacteria may be isolated from the urine, and this may also aid in diagnosis. In an earlier report[16] one case was mentioned in which positive blood culture was not obtained, but streptococci of the same type as were subsequently found at necropsy were isolated from the urine during life.

Stanford Hospital.

(To be continued)

FIBROSIS OF THE MYOCARDIUM*

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AND
FRANKLIN R. NUZUM, M. D.
Santa Barbara

DISCUSSION *by W. T. Cummins, M. D., San Francisco; G. Y. Rusk, M. D., San Francisco; Gertrude Moore, M. D., Oakland.*

CHRONIC myocarditis was one of the diagnoses frequently made in the Cottage Hospital until recent years. This is true of most hospitals, and Cabot states that in the files of the Massachusetts General Hospital it almost leads in frequency.[1] The reason for this lies in the fact that clinical observations have not been carefully correlated with postmortem investigation into the state of the cardiac muscle. Any decompensation or arrhythmia has been considered by the clinician as an adequate basis for this diagnosis. Fahr in 1923 reported the findings in examination of hypertension hearts, as hypertrophy and dilatation of the left ventricle, diffuse connective tissue proliferation between the bundles as well as into them, and much less frequently cicatricial patches.[2] These changes occurred in the chambers called upon to do the increased work and apparently were not due to inflammatory processes. The condition of the coronary arteries was not mentioned. He believed no good grounds existed for assuming that chronic infections are the most productive factor in chronic myocarditis, as no one has ever experimentally produced these changes by inoculation. Following the suggestion of Bell he found that three-fourths of so-called chronic myo-

* Read before the Pathology and Bacteriology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

carditis is due to a primary hypertension. The hypertrophied heart performs excessive work and is less efficient because of the hypertension. The factor of fatigue is very important in the failure of these hearts.

CAUSATIVE FACTORS AND RESULTS

In a report published this year [3] he states that the diagnosis of chronic myocarditis is an unhappy one, and quotes Clawson as demonstrating that fibrosis of the myocardium in hypertension heart is found only when coronary sclerosis is present. Bell is quoted as of the belief that 10 per cent of all hypertension hearts have no coronary sclerosis; 55 per cent a moderate degree, and the remainder a moderately severe to a marked involvement of the coronary arteries.

Cabot, after an extensive analysis of necropsy material, finds that the data support the belief that all cardiac enlargement is a work hypertrophy, due to causes that throw continuous extra work on the heart for months or years.[1] These hearts are prone to fail sooner or later. Myocarditis has no part in this failure, as most of these hearts have none. He states that the use of the term "chronic myocarditis," when there is clinical evidence merely of an enlarged and weakened heart, is never justified, and that this diagnosis ought never to be reported as the cause of death. In his opinion microscopic foci of scar tissue do not contribute to functional weakness; and even gross patches of fibrous tissue may be present with no chronic passive congestion demonstrable at necropsy.

In the majority of cases the appearance of scars in the myocardium is preceded by changes in the coronary arteries. These arteries furnish most of the blood supply to the heart and vary greatly in anastomoses in normal and diseased hearts. Oberhelman and LeCount analyzed nine hearts without arterial disease and found that the coronary arteries were practically end arteries.[4] In five other normal hearts they found a considerable amount of anastomoses. In two other groups of hearts both with and without myocardial change, and having narrowed and occluded arteries, abundant anastomoses were present.

Plate 1 (x 100).—Illustrating hypertrophic heart muscle fibers and sclerosis of a small branch of a coronary artery.

Plate 2 (x 150).—Illustrating scar tissue interruption of the myocardial fibers in a localized region of fibrosis.

The changes in the coronary arteries, listed by Benson [5] as leading to slow obstruction, include: narrowing of the ostia, most commonly from syphilitic aortitis, or from sclerosis; narrowing of the lumina from arteriosclerosis, luetic arteritis, rheumatic arteritis and endarteritis, and rarely from external pressure by a dissecting coronary aneurysm or myocardial scars. Sudden obstruction may be due to thrombosis or embolism and rarely from acute arteritis and endarteritis. Most commonly the process is a mixed type of chronic narrowing complicated by thrombosis.

In the absence of coronary artery disease myocardial scarring may result from rheumatic disease or syphilis of the heart muscle, as has been demonstrated by Warthin. Less commonly toxic and infectious lesions of the myocardium are responsible for foci of sclerosis.

DIAGNOSIS DURING LIFE

Cabot takes the stand that the diagnosis of fibrous myocarditis is impossible during life.[1] In another place he modifies this view somewhat with the statement that it may be suspected in the infarctive group and in certain cases of complete heart block. This attitude of course represents the extreme opposite to the prevalent practice of labeling every failing heart as chronic myocarditis. White has found the electrocardiogram to be very helpful in that bundle branch block, lesser degrees

Plate 3 (x 100).—Illustrating the reactive inflammatory exudate in an infarct which ruptured.

of intraventricular block, inverted T-waves in leads 1 and 11, low voltage in all leads, or moderate or high-grade auriculoventricular block usually mean coronary disease.[6] Even after coronary thrombosis the electrocardiogram may be normal or almost so, and a normal tracing does not rule out some degree of myocardial fibrosis, though it tends to rule out an extensive degree, according to his observations. Masters and Pardee come to the same conclusions that an abnormal electrocardiogram is indicative of heart disease, while a normal record usually means a normal heart.[7]

PRESENT STUDY MATERIAL

In the present investigation forty-three specimens of hearts were examined, mostly museum material. The coronary arteries in each instance were examined throughout their lengths, and sections were cut from the myocardium of the septum and from the wall of each auricle and ventricle. These sections were cut, stained with hematoxylin and eosin, and were examined microscopically for the presence of scar tissue or other changes. In a few instances where the clinical records were obtainable, pertinent data from them are appended.

COMMENT ON TABLES

The material is divided into four groups. Table 1 includes ten hearts from patients known to have had hypertension. In most the systolic blood pressure had been 200 or above, for some time. The average heart weight was 457 grams. In six instances no scar tissue was seen in the heart muscle, and in these the coronary arteries were slightly to moderately sclerosed, with patent lumina. In the other four there was marked sclerosis of the coronary arteries, with considerable narrowing of the lumina, especially of the anterior descending branch of the left. In these hearts small patches of fibrous tissue were found in the myocardium of the left ventricle and septum; the patches were recognizable grossly as gray regions in two instances, but were not of sufficient extent to have apparently materially interfered with the heart's action. Microscopically there were: interruption of the muscle fibers and replacement by dense rather acellular connective tissue. Marked sclero-

TABLE 1.—*Hypertensive*

Heart	BLOOD PRESSURE		Fresh Weight Grams	Condition of Coronary Arteries	Microscopic Appearance of the Myocardium
	Systolic	Diastolic			
A	188	166	234	Normal.	No scarring.
B	250	180	656	Moderate sclerosis. Patent lumina.	Hypertrophic fibers, especially of left ventricle. No scarring.
C	220		353	Moderate sclerosis. Patent lumina.	Moderate hypertrophy of the fibers, slight scarring of left ventricle and septum.
D	150	80	412	Normal.	Hypertrophic fibers. No scarring.
E	150	70	420	Marked thickening with lime and narrowing of the anterior descending branch of the left.	Hypertrophic fibers, patchy fibrosis of the left ventricle and septum.
F	200	100	595	Marked sclerosis, especially of the anterior descending branch of the left.	Hypertrophic fibers, moderate scarring.
G	202	120	355	Moderate sclerosis, patent lumina.	Hypertrophic fibers, no scarring.
H	200	80	485	Moderate sclerosis, patent lumina.	Hypertrophic fibers, no scarring.
I	230	120	700	Slight sclerosis, patent lumina.	Marked hypertrophy of the fibers, no scarring.
J	210	120	350	Slight sclerosis, patent lumina.	Moderate hypertrophy of the fibers, no scarring.

TABLE 2.—*Gross Infarction*

Heart	Weight after Preservation Grams	Condition of Coronary Arteries	Gross Appearance	Microscopic Appearance
3	240	Thrombosis of the anterior descending branch of the left.	Rupture of left ventricle.	Extensive regions of necrosis infiltrated with erythrocytes; thickened walls of arterioles.
2	325	Thrombosis of the anterior descending branch of the left.	Rupture of left ventricle.	Region near the apex has lost staining properties, and is infiltrated by erythrocytes.
1	432	Thrombosis of the posterior descending branch of the left circumflex.	Rupture of the posterior wall of the left ventricle.	Region of necrosis at the edge of the rupture.
M	350	Thrombosis of the anterior descending branch of the left.	Partial rupture of the left ventricle with a subepicardial clot.	Extensive necrotic region infiltrated with erythrocytes and with polymorphonuclear leuckocytes at the edge.
8	365	Thrombosis of the descending branch of the left circumflex.	Aneurysmal dilatation of the posterior wall of left ventricle near apex.	Marked scarring near the apex.
4	427	Thrombosis of the anterior descending branch of the left.	Aneurysmal dilatation of the apex of the left ventricle.	Extensive scarring of the septum at the edge of the aneurysm.
6	135	Marked sclerosis of the posterior descending branch of the right.	Thinning of the wall of the right ventricle.	Apparent disappearance of many fibers of the right ventricle; diffuse connective tissue hyperplasia of septum.
5	662	Marked sclerosis of the coronary arteries with obliteration of lumen of the anterior descending branch of the left	Aneurysmal dilatation of the wall of the left ventricle.	Extensive scarring of the septum and wall of left ventricle.
N	393	Moderate sclerosis with obliteration of the anterior descending branch of the left.	Aneurysmal dilatation of the wall of the left ventricle.	Localized fibrosis of the wall of the left ventricle.

sis of the smaller branches of the coronary arteries was observed in these regions.

For the remaining hearts there are no clinical data. Under Table 2 are included nine instances of gross infarction. Rupture of the left ventricle had occurred in four, while in the rest there were aneurysmal dilatation of the left ventricle in three, and of the right ventricle in one. In all of these there was marked narrowing of the lumen of the artery supplying the infarcted region, or complete obliteration. There was marked sclerosis of the coronary arteries, especially of the anterior descending branch of the left. Thrombosis combined with the sclerosis to produce the complete occlusion. The microscopic picture varies with the duration of life following the infarction, and depends upon whether or not the obstruction of the blood supply develops gradually or suddenly. In the latter instance there is no time for fibrosis to develop, and rupture is likely to occur. Where the arterial narrowing has developed slowly, as from thickening of the vessel wall, the muscle fibers atrophy, and the existing connective tissue contracts. If the necrosis is more extensive the region is converted into a homogeneous pink-staining mass, in which nuclei cannot be identified. Later this is invaded by a reactive inflammatory exudate, the detritus is phagocyted, and a vascular connective tissue forms which later contracts as a scar.

Table 3 lists five hearts, four with valvular lesions and one hypertrophied as a result of adhesive pericarditis, no scarring of the muscle of the wall of the chamber called upon to do the increased work was found; in all the coronary arteries had patent lumina and fairly smooth linings.

In Table 4 are included nineteen hearts placed in the museum for various reasons, mostly hyper-

TABLE 3.—*Valvular Lesions*

Heart	Weight after Preservation Grams	Valvular Lesion	Condition of Coronary Arteries	Microscopic Appearance of Myocardium
10	419	Mitral and aortic thromboulcerative endocarditis.	Normal.	Unchanged, right ventricular wall 7 mm. thick.
66	384	Stenosis of pulmonary artery by enlarged tuberculous glands.	Normal.	Unchanged, right ventricular wall 8 mm. thick.
12	345	Aortic, mitral, and tricuspid stenosis.	Normal.	No scarring.
43	515	Mitral stenosis.	Normal.	Right ventricular wall 10 mm. thick; hypertrophic fibers, but no scarring.
13	510	Adhesive pericarditis, with incompetent aortic valve	Normal.	No scarring.

TABLE 4.—*Miscellaneous*

Heart	Weight after preservation Grams	Condition of Coronary Arteries	Miscroscopic Appearance
T 3	101	Moderate sclerosis.	No scarring.
U 22	433	Slight sclerosis.	No scarring.
55	408	Slight sclerosis.	Slight interfasicular increase of connective tissue.
46	449	Normal.	No scarring.
54	317	Normal.	No scarring.
1648	420	Normal.	No scarring.
32	267	Normal.	No scarring.
28	227	Moderate sclerosis, patent lumina.	No scarring.
64	328	Moderate sclerosis, patent lumina.	No scarring.
47	342	Moderate sclerosis, patent lumina.	No scarring.
50	459	Slight sclerosis.	No scarring.
29	467	Slight sclerosis.	No scarring.
69	245	Moderate sclerosis, patent lumina.	No scarring.
57	381	Moderate sclerosis, patent lumina.	No scarring.
27	337	Moderate sclerosis, patent lumina.	Slight scar tissue formation of the left ventricle.
31	225	Slight sclerosis.	No scarring.
30	272	Marked sclerosis of anterior descending branch of the left.	Extensive fibrosis of the septum.
39	280	Slight sclerosis.	No scarring.
17	269	Normal.	Normal.

trophied as a result of hypertension. We assume this to be so, since no valvular lesion or adhesive pericarditis is present to explain their increased weights. In these a slight scarring of the myocardium was present in four. In two of these the sclerosis of the coronary arteries was slight, in one moderate, and in one, marked, of the anterior descending branch of the left. In the remaining fifteen hearts the involvement of the coronary arteries varied from little or none to a moderate thickening. Likewise in these the only change present was a hypertrophy of the muscle fibers, no scarring being seen. In most instances, therefore, the regions of fibrosis are explained by a decrease or total lack of blood supply from changes of the coronary arteries. In a few instances the arterial changes do not seem sufficient, and a preceding syphilitic or rheumatic inflammation may well have been responsible for the muscle damage, with the resulting scarring.

CONCLUSIONS

1. Fibrosis of the myocardium is not the result of work hypertrophy, but in the majority of instances results from decreased blood supply to the affected region from disease of the coronary arteries.

2. Less often scars of the myocardium may result from a preceding syphilitic or rheumatic myocarditis.

3. A decompensated heart is not justification for the diagnosis of fibrosis of the myocardium. We believe that in the presence of electrocardiographic changes, and with a characteristic history of anginal pains, the presence of scar tissue may be predicted, though in the absence of gross infarction these regions of fibrosis do not seem important.

Cottage Hospital.

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DISCUSSION

W. T. CUMMINS, M. D. (Southern Pacific Hospital, San Francisco).—Perhaps there is no diagnosis that is more frequently made during life and later entered upon the death certificate than "chronic myocarditis." This diagnosis by many clinicians appears to be a comprehensive one covering a general cardiac pathology which induces any one of the symptoms of decompensation, arrhythmia, cyanosis, dyspnea, etc. It is patent that there have not been sufficient studies based upon the correlation of clinical and pathological data. We know that chronic interstitial myocarditis or fibrosis of the myocardium may exist either as a diffuse fibrosis, coincidental with a similar process in the other viscera and attendant upon chronic toxic factors, or as a localized fibrosis, which is chiefly induced by coronary pathology. As a matter of fact the pathologist does not see a diffuse myocardial fibrosis that is commensurate in frequency with the fibrosis seen in the spleen or kidneys. The majority of our

cardiorenal cases, with and without the hypertensive state, do not show at autopsy diffuse myocardial fibrosis. Some of these cases develop coronary sclerosis, which eventuates in more or less stenosis and sometimes thrombosis. Infarction may take place and, if the patient survives, replacement hyperplasia, or localized fibrosis, develops. The diffuse form of chronic myocarditis does not yield symptoms whereby it may be clinically diagnosed. The localized form may be suspected in cases which clinically reveal coronary disease.

The authors have concisely and interestingly presented a very pertinent topic and the writer agrees with their expressed sentiment. The writer thinks that "chronic myocarditis" should be eliminated from our clinical nomenclature, and that the term "chronic interstitial myocarditis" should be only a pathological one. If the clinician believes that complete obstruction has occurred in a coronary artery, the assumption is that infarction has occurred. In some cases without autopsy "cardiac dilatation" may be the assumed terminal pathology, and this oftentimes is the end of a process comprising work hypertrophy and subsequent muscle fatigue or degenerative changes. It is the writer's opinion that if we performed more autopsies we would find a greater incidence of coronary disease to explain myocardial pathology and, therefore, relieve somewhat the plethora of "chronic myocarditis" diagnoses.

❊

G. Y. Rusk, M.D. (University of California Hospital, San Francisco).—The topics discussed in the paper appear to the reviewer most timely. The use of the term "chronic myocarditis" possibly has arisen from a tendency to give anatomical explanations to purely functional disorders. It has been our experience also that the term "chronic myocarditis" has formerly been too extensively used to cover merely functional inadequacy of hypertrophy and secondary dilatation of the heart. So often has no fibrosis been demonstrable in these cases that we believe there has already been a distinct tendency on the part of the clinicians to be a little wary of this diagnosis. Where there seems to be some definite evidence for a genuine myocardial disease along the lines indicated in the paper it seems to the reviewer wise to use the term "myocardial fibrosis" which term is consistent with the not infrequent findings at autopsy. The term "myocarditis" should be restricted to those cases where the anatomical findings give evidence of a preëxisting inflammatory process. It must be admitted, however, that possibly some of the myocardial infarctions occurring principally in earlier life due to infection of the myocardium brought by way of the coronary vessels may lead to a scarring which years after may have lost all of its microscopic evidences of inflammatory origin. This suggestion is based on the occasional finding of a heart without adequate arteriosclerosis and narrowing of lumina to explain the picture but with the presence of more or less extensive myocardial fibrosis, and even cardiac aneurysm.

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Gertrude Moore, M. D. (2404 Broadway, Oakland). Seldom do we find as large a group of ailments classified under one heading as is covered by the term "chronic myocarditis." The impossibility of differentiating in the living subject inflammatory processes from degenerative ones, and in turn either of them from the scars which result from such lesions, has led to this diagnosis in a large and varied group of pathologic changes in the heart. The only lesion which can with justification be called a myocarditis is one in which there is evidence of active inflammation existing at the time of the examination, with all or at least most of the tissue changes ordinarily found in this type of lesion. While fibrosis of the myocardium is in most instances the terminal stage of a myocarditis it is not in itself an inflammation and should not be so designated. The commonest etiologic factor in this condition is undoubtedly decreased coronary circulation with lack of nutrition, resulting in destruction of muscle tissue and finally scar formation. The subject is certainly one worthy of further consideration and study in order that we may correlate our clinical and postmortem findings.

MEDICAL EDUCATION *

By Langley Porter, M. D.
San Francisco

THE essentials of education necessary for the training of effective physicians is a subject which first necessitates agreement among ourselves as to the functions of medicine in the world. That these functions are preventing and alleviating human suffering, is a view that is hardly likely to be contested by those who are sure that medicine is an art, nor yet by those who clamor to have it ranked among the sciences. Probably both sides will agree that a large part of the time allotted the study of medicine should be devoted to seeking explanations of normal structure and function of the human body, and to a consideration of the deviations of structure and function that we call disease.

It is probable that there will be less unanimity of opinion about the need for studying environmental influences. However, from the moment of his birth until the undertaker, disguising himself as a mortician, finally gets him, man is under the constant attack of a thousand damaging forces, so that almost the major task which confronts medicine has to do with the relief of people who find themselves out of adaptation with their environment, and the doctor's job is to readjust the patient's functions to the world around him; or, when such restoration is impossible, to arrange matters so that the maladjustment can be borne with the least possible discomfort.

If it be true that these things are the chief concern of the art of medicine, it follows that human physiology, which busies itself with the activities of the body and of the body's behavior toward the things and happenings which surround it, must supply the foundation upon which the training of the future physician is based.

The important claims of pathology are rarely understated, but pathology, after all, is merely the codified sum of the information we have accumulated about the physiology and anatomy of morbid states. All branches of clinical medicine and surgery, together with the practice of preventive medicine and of therapeutics, do no more than provide us with means calculated to restore abnormally acting physiological functions to normal. Such a conception should provide the philosophic basis for the study of medicine.

IDEALS IN MEDICAL EDUCATION

Broadly speaking, there are two ideals of education dividing the medical schools of the present day.

The one is the ideal of the trade-school, which strives to turn out its students as skilled handicraftsmen, and as little more.

The other, which we are pleased to think of as professional, seeks to give a man a wider and more comprehensive view of his profession, and

* Read before the Fresno County Medical Association on November 6, 1928.

of his duties toward the community that he is to serve. The superior prestige of the professions, as well as the many privileges accorded to professional men and women, rest on a mutual—though perhaps unexpressed—understanding that the foremost duty of those who are of the professions is to supply unselfish service to others, even though often that service can be rendered only at the cost of great personal sacrifice.

Besides the idealism of community service there also is another quality that marks the professional type of medical school—that is, the effort never to lose sight of cultural values, the endeavor to train men so that each of them will be able to contribute something of leadership to the life of his time, not alone through his skill as a physician, but through his character as a man, his soundness as a citizen, and his philosophic point of view about life in general.

There is a third view of what a medical school should be: a view brilliantly supported by Winternitz of Yale, who is experimenting with the plan in New Haven. As it is yet but an experiment, and an academic one at that, time must be allowed to elapse before a valid judgment can be passed upon it. The guiding principle of this idea is the conception that clinical medicine is merely applied biology; and that the practice of the art can be taught as a graduate school subject, with a pedagogical technique that differs in no way from that in vogue in other graduate departments. In this scheme the hospital is considered one of the biological laboratories, and is put on a par with all others. The obvious error in the plan, as it is outlined at present, is that it loses sight of the essential differences that arise when the materials for our study are drawn from human beings, and when we derive them from impersonal materials in the library and laboratory.

Competent craftsmen in medicine we must have, but competence and craftsmanship are not enough, and it is a question whether these schools that try to give their students an opportunity to see, and do, and hear about every detail of the innumerable manipulations that medicine and surgery employ, succeed in their aim; whether the forest is not lost sight of in counting the trees. It is even a question if young people who come from schools which hold the professional ideal do not turn out to be quite as good craftsmen. Their training is such that they get a thorough understanding of the broad-based principles on which the art of medicine is founded; they are encouraged to be independent thinkers, to develop a critical curiosity, and they learn something of how science may be applied to the unraveling of any problem, whether that problem arise in the laboratory or at the bedside.

While there is no science of medicine, there is the method of science, and there also is a vast body of knowledge about the nature of man and about his environment. The bounden duty of those who practice the art of medicine is to see that no part of this knowledge is neglected, and to see especially that the method of science does not fall into disuse. The term "the method of science" indicates merely a process which uses a thorough observation of phenomena, careful recording of such observations, painstaking consideration of these records, and finally, practical application of such deductions as can logically be drawn from the study.

THE END OBJECTS OF A MEDICAL SCHOOL

After all, the whole problem turns on what manner of man a medical school should be trying to turn out. No matter how much the schools may differ as to the methods of doing it, with very few exceptions they would agree that at least eight-tenths of their graduates will become general practitioners. If these graduates are not prepared to meet the demands of practice, there will have been a dereliction of duty on the part of the school. Nothing can prepare them better than thorough training in this method of science.

The educational duties of the school do not cease when they have created the body of necessary practitioners: they are equally charged with keeping the ranks of the teachers filled with enthusiastic men who know not only the practice of medicine, but how best to present the subject to students; men who are possessed of the understanding heart, the heart that can grasp personalities, the strengths, the weaknesses of the pupils, and can offer the young men opportunities for study and for guidance along the lines suited to the peculiarities of each; opportunities and guidance most likely to round out information and develop character.

A third major educational task is a privilege of the schools: that is, the widening of the boundaries of knowledge about medicine, and about the biological sciences upon which the art of medicine is based, and about the reciprocal influences that medicine and society exert each on the other. And no small part of that task is the training of men, capable to investigate, and competent to carry on research. At the best, no medical school can hope to find more than one or two per cent of its students endowed with the qualities that are needed for the development of good investigators.

As a sort of by-product of these educational duties there rises another, one which is humanitarian in its essence, but which also should provide invaluable training to the student body; that is, the considerate, conscientious care of human beings in hospital wards and clinics; human beings who have trusted the tremendous issue of their lives and of their well-being to the members of the teaching staff.

THE BRITISH AND GERMAN SYSTEMS OF MEDICAL EDUCATION

It is easy to understand that these quite distinctly different tasks laid on the medical school give rise in themselves to many problems. If the problems that arise in this way were the only difficulties that existed, their solution would not be nearly so perplexing. Many of the difficulties are born from the fact that the driving energy of their ideals is derived from two distinct sources: sources philosophically and geographically, as well as temperamentally widely removed one from the other.

The old British ideal was one which dominated American medicine till the 90's of the nineteenth century. It was an ideal in which the medical

school was considered as a sort of adjunct to the hospital. Medical education was thought of as a sort of extension of the more ancient preceptor-apprentice system: a convenient and inexpensive means of giving the hospital an industrious and reasonably intelligent staff. In Britain the medical schools grew out of the preëxisting hospitals.

In Germany, on the other hand, the teaching of medicine became a university function in the days when all of the manipulations and much of the curative technique was in the hands of barbers and apothecaries, when it was considered unseemly for grave and dignified doctors to descend to manual labor in the aid of patients; days in which the authority of booklore was more potent than bedside observation. As a result of such conception, chairs of medicine developed, divorced from any close connection with hospitals. Then, in the mid-years of the nineteenth century, chemistry, physics, and a little later, pathology and the biological sciences, attained a great development in the various German universities; a development which drew many of the world's finest minds to teach and study there. It was only natural under the circumstances that between the biological sciences and the practice of medicine a pedagogical union came about, and through that union an enormous widening of our knowledge was consummated.

In this period of development of German medical teaching, few or any great minds were attracted to clinical medicine as such, and the result was that interest in, and knowledge of the biological sciences hypertrophied while the popularity of clinical medicine waned, and the personal interests of the suffering patients were seemingly lost sight of.

HOW THESE SYSTEMS AFFECTED AMERICAN EDUCATIONAL METHODS IN MEDICINE

Naturally that was but a phase in the development of mid-European medicine, yet it was a phase that reacted profoundly on medical education in our country; for many of our best young men were spending their impressionable years at the feet of German and Austrian teachers. The result was that German principles and German ideals of teaching, German forms of curricula were brought back and transplanted in the academic groves of the United States.

Unfortunately, or fortunately, as the case may be, the young fellows were unable to root out the long-established British ideal (in this country it was really Scotch), and the transplanted methods were adopted as a sort of addition to the then existing methods of teaching. As a result it was found that the philosophies underlying the two schemes were incompatible, and the group of those who believed in the older established methods, and of those who believed in the new ones, each went its own way, without much reference to the other. Two antagonistic and conflicting ideals were compartmented in the spirit of medical education, and, as may happen to the human being who segregates and attempts to suppress his soul's conflicts, a double personality was developed.

As the clinicians were, most of them, of the British ideal, and the teachers of the premedical subjects, proponents of the Continental, this double personality expressed itself largely in antagonisms and recriminations between the so-called scientists and the men who found themselves occupied in the clinics and wards. This conflict has done more to destroy harmony in medical teaching than any other single factor. It was so bad that at one time the word "clinician" carried with it a content of contempt that would have been amusing had it not been evidence of a state of affairs that was unhealthy and damaging, not only to the harmony of the profession, but to the progress of medicine and to the respect with which medicine was held by the public.

Fortunately the conflict is being resolved, and most of the young men engaged have reached a point of view based on the conception that the prime function of medicine is to relieve the suffering of human beings, and to leave the world a healthier place to live in, a better place for future generations to inhabit, and that in order to accomplish this, the ideals of the method of science, together with the principles of physiology and of pathology must provide an informing philosophy for the student at every point of his career.

LABORATORY SCIENCES AND WARD WORK NOT ANTAGONISTIC

The conflict between laboratory sciences and the work of the wards is seen to be a purely artificial creation of intellectual arrogance. Anatomy, physiology and biochemistry, as it is possible to present them in a medical curriculum, can do no more than to teach the future physician the language of his profession. The laboratories of diagnostic methods and the x-ray laboratories are only agencies that enable one who needs to examine a patient to carry his observations farther than it is possible when he has only his unaided sight and hearing to depend upon. The realization that these methods are simply extensions of the methods of physical diagnosis, and that the service to the patient is after all the reason for the existence of both clinician and laboratory worker, brings them both on an equal plane of mutual respect and understanding.

Nevertheless many of the problems which the medical schools must face arise from this conflict of ideals, and the source of conflicts lies in peculiar difficulties presented by the fact that so much of the teaching has to be done through a study of sick people. It is because this teaching material consists so largely of psychologically endowed, emotionally unstable human beings, that it becomes impossible to apply to medical education all of the pedagogical principles that are valid when we are dealing with more academic subjects.

RESPONSIBILITIES OF MEDICAL SCHOOLS

The responsibilities of medical schools, especially those that are funded through state aid or endowment, are very great. There is no one factor more essential to the power and progress of a nation than abounding health; and a high degree of health is attainable only when the art of medicine is vigorous and growing; when it is adding new facts to the store of its knowledge and sup-

plying a succession of men competent to apply these facts for the common good—some doing their part as practitioners of both curative and preventive medicine, some as teachers and others as investigators. It is obvious that if medical schools fail in these functions there can be no adequate advance in the art of medical practice, and that the nation will suffer. Undoubtedly it is a recognition of such things that has brought about the widespread epidemic of self-examination and unbridled attempts at reform that have afflicted medical schools during the past quarter-century, and which now threatens to break out again in perhaps a more virulent form.

If we can agree that the art of medicine and the biological sciences that serve it can and should be brought to the effective service of man; that the purpose of the medical school is to graduate men, wise, capable and well trained enough to provide the service, it will be in order to inquire how the school can best fulfill that purpose, with the greatest economy of money and of the human energy of its teachers and students.

FOUR MAJOR FACTORS IN A MEDICAL SCHOOL

There are four factors that must be integrated in the medical school: the teaching staff, the student body, the curriculum, and the physical plant, which although not the most important part of the four, still is a factor that will brook neither neglect nor undue economy, for on it depend the opportunities of the student for contact with adequate physiological, anatomical, pathological, clinical and not the least, bibliographic material. No medical school can afford to be weak in any one of the four factors, but undoubtedly, to insure strength in the personnel and character of the teaching staff, is the first step toward laying the foundation for greatness. Nothing is so important as the character, competence, and point of view of the men who are there to inspire the student body with enthusiasm for learning, and with an understanding of the applied humanities. At the present time the student body of any university medical school is made up of men who have been subjected to very severe processes of selection; once at the high school, again as they entered the university, and again at the threshold of the medical school. If there is any virtue in examinations and grade points, the profession is being recruited from intellects as highly developed as any in the country. Although it is probable that the previous training of the entering students is of relatively little importance to the finished product of the school, for the reason that from now on for five of the most impressionable years of their lives, the men must live in close contact with the enthusiasts who are leaders of their chosen profession. It would be an anomaly if such had not the power to sway the youngsters and to awaken similar enthusiasms of the spirit for one or another phase of theory or practice.

FRIEDRICH MÜLLER'S VIEWS OF AMERICAN MEDICAL SCHOOLS

Friedrich Müller has recorded his impression of a recent visit made to the more renowned medical centers of America, and he deplores the tendency that he discerns toward a weakening of the personal influence of individual teachers. Rightly or wrongly, he attributes this to our dislike for the didactic lecture and other forms of didactic instruction. He questions whether Osler's influence would have been so great and so enduring, had he not indulged in his daily formal demonstration clinic. There is real acumen in this criticism. Certainly no one can deny the immense value, as well as the pleasure to be derived from watching a great, or even a good mind as it formulates problems and brings the method of science to their solution. To some degree the student makes the pattern of the teacher's mind his own and carries away much more precious acquisitions than the mere information imparted by the lecture. Not that Müller would have all instruction given didactically, for he was much impressed with what he termed "the work-school" methods of American schools and clinics. I daresay that if we were asked to say what most clearly remained of the things we learned in our respective medical schools, and what things among those, retained for us the greatest value, most of us would agree in naming the ways of approaching problems and of considering them that we caught from those teachers whose personalities most impressed us while we were students. It is not the facts that they taught, but the philosophy, the shrewdness of observation and deduction, the clarity of discrimination that make us remember a Levi Lane and a William Watt Kerr as great teachers.

THE FOUR-YEAR MEDICAL CURRICULUM

In such an organization as we are considering, the study of normal physiology would be stressed during the first year, and continued with unceasing emphasis throughout the course. On the other hand the physiology of the abnormal, that is, pathology, would lightly be touched upon in the first year through weekly talks, illustrating how the normal processes of physiology, biochemistry, and anatomy become abnormal.

In the second year, after physical diagnosis of the normal has been taught and the methods learned applied to the detection of abnormal states, experimental pathology would be taken up together with bacteriology, for, after all, bacteria are the causes which originate a very large part of human pathology: and also this year seems to be the time best suited for a study of drugs as they act on normal and abnormal bodily states, and for a survey of the various therapeutic measures other than drugs.

The third year would afford the student the opportunity to concentrate on the commoner deviations from normal physiology, to learn how to interpret symptoms in terms of physiology, normal or abnormal, to study the phenomena of disease in the medical and surgical wards, and in the autopsy room, as well as in the laboratories of morbid anatomy and pathology. It is in this year that the students could well have their chance to learn history taking, mastering the ability to get an accurate record of what has happened to the patient, and to appraise the evidence justly,

while using the information gathered wisely; those are accomplishments that are too often undervalued. Nothing will repay a student more than patient effort given toward mastering the art of history taking.

By the end of the third year the student should have thoroughly grasped the idea that disease is merely the expression of the various possible deviations of physiological processes, and also that therapeutics is but a name given to the sum of all the various measures that medical men use with the hope that they may be able to restore bodily functions. By that time the young man should have acquired a clear understanding of principles, a fair amount of technical skill, and a high sense of his responsibility. If he has not, there is little hope that he will ever succeed in his chosen profession. If he has, it will be possible to allow him an increasing responsibility for the care of the patients, necessarily under close guidance, and with every opportunity to advise with, and take counsel from his seniors. So that during his fourth year the student's work becomes the application to his own patients of the methods and information he has previously acquired through coöperative study with his fellow students and teachers.

The fourth-year man should have been so prepared that the patient appeals to him as an individual out of adjustment with environment, and the readjustment of that individual as the fundamental problem of medical practice. For the man engaged in medicine, whether he be cloistered in research, or active in healing, this is "The Final and the Chief Good," as Aristotle posed it in his consideration of Ethics. All the activities of the research student, the investigator, the clinician, the therapeutist, serve this end, and are therefore subordinate to it. And as a part cannot be greater than the whole, so none of these can be greater than the end which they serve; therefore if these activities are to be fruitful and satisfying to those occupied with them, they must never lose sight of the final end, the greater good, which alone can justify them.

The student should have acquired a philosophy which is not made pessimistic by the knowledge that a perfect restoration may be impossible. Confronted by the incurable or the partially curable, he should be convinced that anything, however so little as it may be, a physician can do to restore function and to relieve distress, it is his duty to do, and that it is a duty well worth doing.

RECENT TRENDS IN FOURTH-YEAR MEDICAL SCHOOL WORK

The trend of policy in the more progressive schools at this time is to give the fourth-year man a greater share of responsibility for the care of patients. There is, however, no general unanimity of opinion as to how this can be done for the best advantage of both, the student and the patient.

One interesting attempt to solve this problem combines the use of a closely supervised clinical clerkship for third-year men; schools that use this method, cut lectures and other didactic teaching to the minimum. The third-year men are taught clinical medicine and surgery entirely in the wards; the students keep very complete histories of every patient seen; these histories are scanned frequently and critically by members of the staff, and frequent consultation seminars are held on the problems that arise during the study of each patient's case. Physiologist, pathologist, anatomist and pharmacologist may join with the clinical teachers in helping the students solve these problems. During these sessions, references to literature are indicated and the student is required to incorporate summaries of important significant articles with the history.

This method of developing the mental power and the interest of third-year men is pedagogically sound. It meets the general and fairly reasonable objection often made that the third-year students should not be permitted to work much in the wards, because they are not sufficiently informed, nor likely as yet to have developed a sufficient sense of responsibility.

By the end of the third year the supervision of the clerks during that year should have remedied both these defects, and the men should be possessed of efficiency and responsibility. The study of the histories will afford the supervisors a splendid insight into each man's progress, his strengths and weaknesses, and make it possible to do away with many of the burdens of examinations. So that, by the time the men have had a year of such training, most of them are competent to enter the fourth-year and to carry on work as out-patient physicians with the minimum supervision.

The only objection to the method is that it demands a large and interested staff of supervisors; to insure such a staff does make severe demands on the exchequer of a medical school. However, the stress is somewhat eased because the presence of a well-trained fourth-year class in the dispensary brings with it some possible economies in the administration of that department.

Should the fourth-year men be put to work in the out-patient departments, or assigned to work in this or that department, or to some special clinic, or would some other plan be more profitable for their training? That again is a question.

Out-patient clinical organization has grown up with but little thoughtful consideration of the use of patients for the purpose of teaching. The convenience of the clinician has been the chief consideration; how could he give the most rapid service, within the limits of efficiency, to the greatest number? That has been the problem attacked. In a dispensary organized with such an aim and guided by such a principle, the teaching, at best, must be casual, time-wasting and fragmentary.

In the plan now under discussion the fourth-year men are assigned their work in quite a different way than has been usual heretofore. It undertakes to make a radical change in the relation of the students to their dispensary work, a change possible only because these men come from a third year of intensive clinical training that has been scrupulously supervised. Students are assigned not to this or that special clinic; they are sent to an admitting clinic where, under com-

petent supervision, they become medical advisers to certain patients. Each man or woman of the class is introduced to someone who has come seeking relief, and is told that that suffering human being is his or her patient; so long as they both are attending the dispensary, the student is to be responsible for the patient's care, and is to be the sick person's medical adviser. He is to meet his patient by appointment, he is to examine and record his findings and check them up under the direction of the visiting physician, who is also an instructor of students. This physician decides on the need for consultation, and the student accompanies the patient to the clinics indicated, and records opinions and findings of the consultant clinic on the patient's record; he also gets from the various physicians who see the patient assignments of reading pertinent to the consideration of the case, and of these he must record salient summaries in the record, and on the total records of this year, his standing as a student is rated. No matter to which of the many dispensary clinics the patient's ills take him, the student follows him there; if he goes into the hospital, there, too, the fourth-year student goes. If there is reason to suspect that economic stress, or bad home conditions are contributing to the individual's ill health, the student goes to the home, investigates and reports to his chief, so whatever means of relief are needed, the young man can learn what these are and how best they can be applied. In a way, the idea makes a return to the old apprentice system, but with an improvement: the student is apprenticed to the clinic, and he learns there that clinical medicine exists for the benefit of these suffering human beings we call patients, and that, after all, the science of chemistry, physics, and biology serve the art, while the laboratories are the shops in which medicine forges the weapons that she needs for her ceaseless combat with the forces of destruction and death.

THE FIFTH OR HOSPITAL YEAR

At the end of the four years of such training, the young aspirant to a place in the ranks of the medical profession has to spend another year in training as a resident pupil in a hospital, for all authorities are now one in the conviction that an intern year spent in a hospital of the first rank is essential, not only for the benefit of the pupil, but as well, for the protection of the community. This increased experience, this greater sense of responsibility coming after the long novitiate should guarantee that the profession is recruited in a way that insures not only technical efficiency and intellectual power, but also high character in those who are to renew its life and to maintain its traditions.

Whether these individuals turn to the practice of medicine and surgery, or whether they return to the laboratory for a life devoted to investigation, after such a training they should have acquired a philosophy of life which will bring them to consider that no man can find a more exalted calling than that which has for its aim helping human beings adjust themselves effectively and comfortably to the world in which they needs must exist; a philosophy which will endorse the sentiment expressed by one of medicine's greatest foster sons, Louis Pasteur, when he wrote:

" . . . Nothing is more agreeable to a man who has made science his career than to increase the number of his discoveries; but his cup of joy is full when the result of his observations is put into immediate practical use. . . . "

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INDUSTRIAL DENTISTRY*

ITS TREND—INCLUDING SOME OBSERVATIONS ON EUROPEAN PRACTICE

By GUY MILLBERRY, D. D. S.
San Francisco

INDUSTRIAL dentistry in some form or other has been in existence for more than a quarter of a century. The first dispensary of which we have knowledge was established in Rio de Janeiro in 1900 in a soap, candle and glycerin factory, where three hundred employees are now engaged. It has been in existence ever since. Free service has always been rendered there, and no deduction in wages is made for time spent in receiving dental treatment.

In the United States the introduction of this form of health service was practically coincident with the war, when the problem of efficient labor was a matter of grave concern because the majority of the employed persons were to a greater or less degree disabled. Statistics show that over 20 per cent of the drafted men were rejected for dental defects.

At the Seventh International Dental Congress, held in Philadelphia in August, 1926, interesting data were presented on this question. Dr. E. L. Pettibone of Cleveland, Ohio, reported that, in so far as the information was obtainable, ninety-one concerns in the United States and Canada maintained dental dispensaries. A resolution was passed at this Congress to the effect that "Public dental care forms the continuation of dental care in the school and must be supplied by sick funds, hospitals, factories, the Army and Navy, and the like. It forms an integral part of the public health service in all countries."

There seems to be no definite trend toward establishing dental clinics in any particular field, for they are to be found in all types of industry, as in cash register factories, department stores, and Babson's service.

AMERICAN DENTAL CLINICS

Industrial dental clinics were available in 1926 in the United States to more than 400,000 employees, and dental service was rendered by 164 dentists, 42 dental hygienists, 100 nurses, and 57 clerks. Two-thirds of all these dental dispensaries were an adjunct to or placed under the direction of the medical dispensary. This is as it should be because it is a part of a general health service, and a single administration is sufficient.

Massachusetts, New York, Pennsylvania, and

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Ohio are the states where industrial dental service has been developed to the highest degree, probably because industrial development in all lines has progressed farther in those states. California has had but a sporadic interest in the problem. The California Raisin Growers' Association and the California Citrus Fruit Growers' Association have maintained clinics for a number of years. The Emporium, in San Francisco, the Oakland Mazda Lamp Company, the Southern Pacific Company, and the Paraffine Paint Company have maintained dental clinics also. There has been no active development here, however, chiefly because the dental profession has not taken the problem up with the executives of plants or concerns where a large number of persons are employed.

Some trade-unions in America have established dental clinics, but these are more commonly found in the East where foreign labor is employed, and the plan seems to be a modification of the European insurance system. This similarity is especially noticeable in New York, where the garment workers' unions employ their own dentist. A good many men look upon industrial dentistry as a disguised form of health insurance.

EMPLOYERS' VIEWPOINT

Not infrequently employees rise to become managers of departments or plants, or become employers of labor themselves, hence any form of service that will reach employees and prove to be beneficial to them is likely to be favored by those who have risen. Generally the man in the office has had more and better dental service than the man in the shop, although his economic status may not be better; from the standpoint of need, then, the man in the shop will require more of the attention of the company dentist.

Employers of labor are usually well informed regarding the need for and the value of good dental service. When consideration of this kind is asked by their own dentists, they have investigated and frequently inaugurated a dental health service for employees, especially in companies where some form of medical service already exists. Many of the industrial dental dispensaries in America have started in this way, though the dentists who promulgated the thought or plan had no personal ambitions to gratify.

The industrial dentist is not concerned with conditions under which men work, such as ventilation, illumination, sanitation, safety devices, and so forth; neither is he concerned with tours of inspection through the plant.

In part, the fundamental principles of industrial medicine, such as preventive, curative and educational procedures, apply equally to industrial dentistry. The health hazards of various manufacturing processes, the problem of poisonous gases, fumes and dust, physical examination, the correction of remediable defects, which cause minor disabilities and absence from work, are the concern of both dental and medical service.

Work in a candy factory is reported to be very detrimental to the teeth, yet sugar is a nonpoisonous substance. The abolition of the use of yellow phosphorus in match factories eliminated a very prevalent and serious disease known as "phossy jaw."

CHARACTER OF SERVICE—CURATIVE AND PREVENTIVE

What character and what volume of dental service shall be rendered? One hundred per cent of all people above the age of three years need some dental service, and they would be much better off if they received such service at least twice a year.

In most industrial dispensaries, however, the custom continues of rendering emergency service for the relief of pain and for the elimination of infection which may cause a disability. This is largely the heritage left to industrial medical and dental clinics by the "mine doctor" and "camp doctor" of former days.

Examinations of the mouth and teeth in more progressive plants are now made concurrently with the general medical examination of new employees and periodic reëxamination of old employees is frequently practiced.

An inquiry into the customary procedure in American industrial dental clinics elicited the information from more than 50 per cent of the correspondents that prophylaxis produced the best results both as to its influence on the health of the oral cavity and also as to its psychological effect upon the employees. This type of service has the effect of stimulating the demand for other types of service.

While esthetics plays no part in the problem of industrial dentistry, especially among plant workmen, service which aids in the improvement of health and efficiency and produces a better spirit of coöperation and good will among the employees is looked upon favorably by executives.

EDUCATION OF EMPLOYEES

Education of the employees in the need for and the value of good dental service is important. This is customarily carried on by means of pamphlets or articles published in the house organ. Well written, well illustrated information finds its way into the home through the worker. Such ideas and recommendations are much more likely to be followed in homes where economic conditions make the prevention of disease a possibility.

Education in the prevention of dental disorders is especially valuable for children, and in employments where the industrial worker's child grows up in the service of the company which employs his father it is advisable to carry this education to the children wherever possible. The Colorado Fuel and Iron Company at Pueblo, Colorado, have carried on an excellent educational service for children, employing a dental hygienist whose chief duty is to educate and care for the children.

Dr. Ellen Stadtmuller, in discussing children's care recently, stated, "When teeth are decaying and uncared for we have a center of infection which may exert its influence on the body generally." Clinical experience in dentistry supports this view.

RELATION OF TIME LOSS TO MEDICAL COST

Figures such as were given me a few years ago by the medical director of the National Cash Register Company will indicate to an executive

that the saving in lost time, which in this case amounted to $27,000 a year is well worth while. He stated that the joint medical and dental service was able to save an average of forty hours a year for each of five thousand employees, whose average wage was fifty cents per hour, which totaled $100,000. The cost of this service was $73,000 dollars. He stated further that the medical and dental dispensaries are looked upon as a part of the plant, just as much as the sales or shipping or manufacturing departments are.

Another element of cost which is deserving of consideration is transportation and hospitalization of ambulatory cases, where local service with a reasonably short trip will accomplish equally good results. Thus one company, operating extensively in several states, finds it advisable and satisfactory to arrange for dental service in certain centers rather than transport patients long distances and hospitalize them at a central point, with a greater loss of time.

In some instances overenthusiastic individuals have expanded the dental service until it became top-heavy and collapsed of its own weight. It is difficult to reinstate such a service. It is also unwise to employ any considerable amount of clerical assistance in an effort to prove a theory in connection with the economic value of dental service.

EUROPEAN INSURANCE PLAN

The European situation is somewhat different. There the insurance plan prevails generally. It is especially true in Germany, where every person employed must be insured and in England, where the Health and Unemployment Insurance Act is very generally applied.

In Germany, with a population of sixty-five millions, eleven dental dispensaries are maintained for workers. In New York, with ten million people, fourteen or more dispensaries are in operation; in Ohio there are sixteen; in Pennsylvania, seventeen; and in Massachusetts, nineteen dispensaries.

In England between thirteen and fourteen million people belong to approved societies, which avail themselves of the benefits of the Health Insurance Act. A great many of the approved societies use their surplus funds to pay in part for additional dental benefits, the patient paying the difference in cost. It has been estimated that $50,000,000 annually will be available for about fifteen million people in 1930, and that 50 per cent of them may avail themselves of this service. All of these people are compulsory contributors to the plan, but many will not use it.

I visited some of the industrial dental clinics, and one in particular interested me. It was one of the two dispensaries maintained by the London Omnibus Employees Association; there are thirty-five thousand members in the society. Three dentists, four nurses, and four mechanics were employed there whose hours of labor and compensation were fixed by the association. The only service rendered was the necessary prophylaxis, the extracting of teeth and making of plates. The volume of work to be done and the limited means at the disposal of most English workmen necessitate that form of service which will render the greatest amount of restorative service for the least expenditure of money.

I found generally on the Continent that, because of the compulsory insurance system, the largest percentage of the people pay little or no attention to the prevention of disease or to keeping well because they know the contributory plan makes it possible for them to go to the clinic or the hospital for service whenever they are sick. Ninety per cent of the people of Germany go to public clinics for their dental service. I visited forty dental schools and equally as many community, school and industrial dental clinics in western Europe, and in nearly all of the countries which I visited little effort is being made to maintain health and efficiency by keeping well.

The industrial dental dispensary has a very definite value in any plant where there is a sufficient number of employees (three hundred or more) to justify health service. The returns justify the expenditure made both as to time saved and good will earned.

The service in dentistry is quite satisfactory if conducted on a part-time basis, if, in the selection of the dentist or the staff, care is taken to choose persons who are capable and *interested* and who will remain long enough to establish and maintain a procedure that will be satisfactory to employer, employee, and associates alike.

1045 Clayton Street.

PRINCIPLES WHICH GOVERN REFLEX ACTION IN DISEASE*

By F. M. Pottenger, M. D.
Monrovia

Discussion *by Samuel D. Ingham, M. D., Los Angeles; Lewis Gunther, M. D., San Francisco.*

AN understanding of the principles of the visceral reflex is essential to the understanding of disease, yet no effort commensurate with its importance is made to understand the subject. Certain reflexes arising and ending in the voluntary structures are described in all textbooks, but the visceral reflexes receive very little discussion except in the writings of physiologists.

Disease expresses itself in symptoms. Symptoms are disturbances of normal physiology. A disease can rarely be suspected by the one affected until it begins to produce changes in physiologic action, such as discomfort, pain, or a disturbance in function of some organ, as the eye, heart, lungs, stomach, intestines, liver or kidney.

In order to understand the part played by the reflex in disease it is necessary to understand to what processes activity in the body is due. Activity of cells is automatic. In the viscera it exists independently of nerves and hormones, and takes place normally as long as their protein and lipoid masses are bathed in the physiologic salt-containing body fluids.

The hormones or chemical messengers are not for the purpose of causing action but of altering

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the action established by certain cells. They are more selective than the electrolytes found in normal body fluids. Apparently calcium on the one hand and sodium and potassium on the other bear a share in the activity of all cells of the body. They antagonize each other and when rightly balanced keep cellular activity within the bounds of physiologic equilibrium. The hormones on the other hand, through selective action, affect certain activities to the exclusion of others. They, however, form the chemical system for correlating activity in different parts of the body, and are thus a part of the mechanism which is provided for serving the more complex organisms.

FUNCTION OF THE NERVOUS SYSTEM

The nervous system, however, is the chief correlating and integrating system of the body, and causes a very complex organism made of many parts to function as a unit. From the central nervous system fibers go out to every muscle and gland cell in the body. The neurons going to the body cells are of two kinds: one for picking up stimuli and carrying them centralward, the other for translating stimuli into action. Every afferent neuron which carries stimuli centralward ends in the posterior root ganglion of the cord and the part which corresponds to it in the brain. From here the stimulus is carried further into the central nervous system by what are termed connector or intercalated neurons. Through these connector fibers every afferent neuron is able to join with every efferent neuron of the body. Thus is established a mechanism which is able to bring every part of the body into a close and harmonious relationship during conditions of physiologic activity; and thus is established, furthermore, a mechanism which is able to produce disharmony through reflex effects in any and every part of the body during conditions of pathologic activity.

While the body cells can function without nerves, yet their action is under the influence and control of nerves. There is a difference in the nerves supplying different structures. Thus we have the voluntary nerves supplying the skeletal structures and the involuntary or vegetative nerves supplying the visceral structures. The latter supply all smooth muscles and secreting cells, and in supplying the blood vessels go to every part of the body. The vegetative system is shown in Fig. 1.

There is a free and intimate communication between the various neurons of the voluntary system with each other, and the various neurons of the vegetative system with each other, and the various neurons of the voluntary system with the various neurons of the vegetative system, which binds together visceral and skeletal structures in such a way that action under either physiologic or pathologic conditions in one organ or structure of the body may influence other organs or structures through reflex action.

Whenever disease exists in the body it alters function in few or many structures. It may produce its effects in several different ways. It may be an infection producing bacterial toxins. It may exert a destructive action on certain tissues and cause toxins to be liberated from them. It

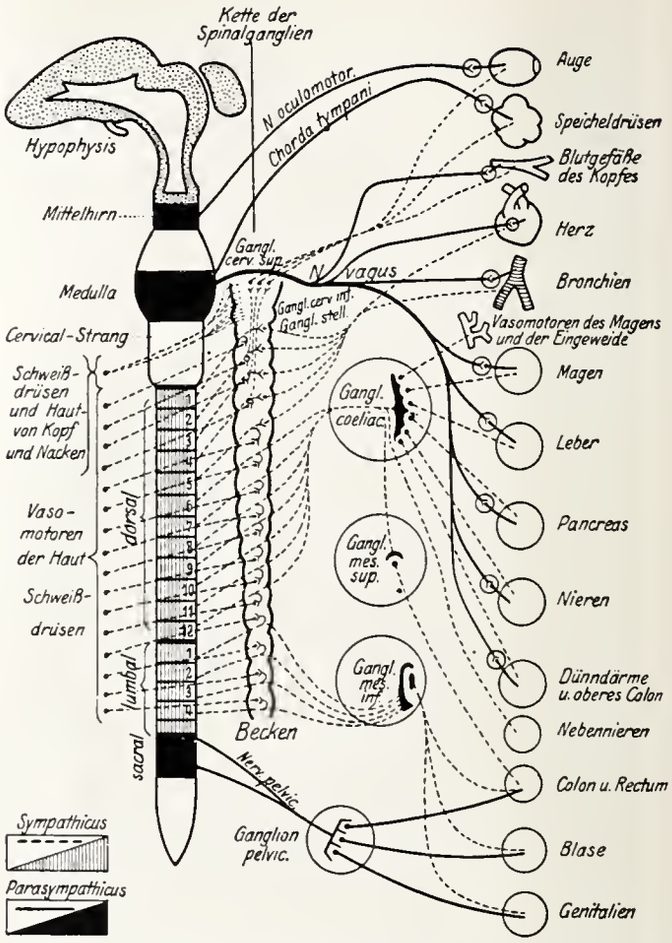

Fig. 1. Schematic Illustration of the Distribution of the Two Components of the Vegetative Nervous System, Showing Its Division into Sympathetic and Parasympathetic and Their Branches to the Various Organs.—The thoracolumbar portion of the cord, which gives origin to the sympathetic nervous system, is represented by lines. The portions of the midbrain and medulla, and sacral segments of the cord, which give origin to the parasympathetic system, are represented in black. The peripheral nerves belonging to the parasympathetics, are shown as solid black lines, while those belonging to the sympathetic system are shown as broken lines. This chart shows the double innervation of the structures of the head, heart, and the entire enteral system, and likewise indicates the single innervation for the blood vessels, pilomotor muscles and sweat glands of the body. (Symptoms of Visceral Disease.)

may interfere with the action of some important organ so that it fails to do its work and allows a retention of poisonous products to circulate in the body fluids. It may exert an injurious effect locally because of its assuming an inflammatory nature. Lastly, it may disturb function in other viscera reflexly.

We must attempt to find out in what way function is disturbed as a result of the above mentioned harmful influences. We assume that toxins which circulate generally produce harmful effects on the cells throughout the body. This affects to a varying degree the automaticity of the cells themselves and further affects them in the aggregate as found in definite structures and organs. Thus we assume that higher centers in the central nervous system, the nerves themselves, as well as glands, muscles and other peripheral structures, come in for injury from toxins.

Through their effects on ganglia in the central nervous system toxins produce harmful stimuli which are sent peripheralward, where they produce dysfunction. This is evident in cases of general toxemia where the equilibrium of the entire vegetative system is disturbed. The chief peripheral effect, however, is that of an oversympathetic

stimulation. The reflex is most evident in disease caused by definite organic inflammation. In such instances the inflammatory process causes stimulation of the sensory neurons whose receptors are found in the tissues affected by the pathologic process, beyond the degree of stimulation which is usual for that organ or tissue in health. These excessive stimuli cause impulses to be carried centralward and to be transmitted to efferent neurons which translate them into action often excessive in other structures.

This excessive action is represented as symptoms of disease. It may be a pain, or changes in distribution of blood, or a muscle contracture, or disturbed secretion in some gland. The reflex activity may affect only one organ or it may extend widely according to laws which we shall discuss later.

There are several groups of reflex symptoms possible in the presence of disease, such as: (1) from one part of the voluntary system to another part of the same system, as is met in inflammation of a joint; (2) from the voluntary system to the vegetative system, the principle of which is utilized when heat or blisters are applied to the surface of the skin in order to influence internal organs; (3) from the vegetative system to the voluntary system, as is illustrated by the muscle spasm in skeletal muscle in the presence of visceral inflammation; and (4) from the vegetative system to the vegetative system, as is witnessed so often in visceral inflammation and is especially well known in the so-called functional symptoms which affect one part of the gastro-intestinal canal when another part or a neighboring organ is the seat of inflammation.

TYPES OF REFLEXES MET CLINICALLY

Reflexes commonly met in clinical practice are: (1) the *motor reflex* in case of visceral disease, such as the spasm of the muscles of the abdomen in appendicitis, gall-bladder disease, and ulcer of the stomach; of the muscles of the shoulder girdle and diaphragm in tuberculosis of the lung; of the intercostals in pleurisy; and of the lumbar muscles when the kidney is inflamed as in tuberculosis of that organ; (2) the *sensory reflex* or pain which is referred to the surface of the body when important viscera such as the appendix, gall bladder, stomach, pancreas, urinary bladder, kidney, ureter, heart, lungs, and pleura are inflamed (this is not a true reflex, physiologically, but may be so classed clinically); (3) the *trophic reflex*, which shows as a degeneration of tissue when nerves have long been irritated by excessive stimuli, such as is best illustrated by the atrophy which takes place in the muscles and skin and subcutaneous tissue innervated by those cervical nerves which express reflexly the stimuli arising in the lung in chronic pulmonary tuberculosis; and (4) the *motor* and *secretory reflexes*, which are usually spoken of as functional symptoms for which the stimuli arise in one organ and are expressed in another, such as the motor and secretory changes in the gastro-intestinal canal caused by inflammation of the appendix, gall bladder, stomach (ulcer), lungs, heart, kidney, and genito-urinary organs, or the asthma resulting from nasal irritation and the cardiospasm and pylorospasm which result from various visceral irritations.

NATURE OF REFLEXES

Reflexes may be comparatively simple or very complex. While a reflex requires only three components: a sensory receptor to pick up the stimulus, a motor effector to translate the stimulus into energy, and a synapse, where the stimulus is transferred from receptor to effector, yet such a simple arrangement is probably never found. There are usually several and more often many neurons interposed between the receiving and affecting nerve. Therefore reflexes are, as a rule, quite complex.

The complexity of reflex action is provided for by the multiplicity of connector neurons in the central nervous system as previously mentioned, which connect the incoming nerve bearing the stimulus with all motor nerves of the body. This widespread connection is seen in strychnia poisoning where the resistance at the synapses is broken down and universal contraction of muscles may be reflexly affected from irritating any afferent neuron.

While widespread efferent paths are open to all stimuli, yet most reflexes arising in definite tissues and organs are expressed in certain other definite areas according to a well-established law, and when a departure from this regular course takes place it, too, follows definite laws, which will be discussed later.

Segmental Nature of Reflexes.—In order to understand visceral reflexes we must acquaint ourselves with the embryologic development of the body, for here alone can we acquire a comprehension of the segmental relationships which are fundamental to understanding the reason why action in a given tissue or organ, or a definite skeletal area, is expressed as a result of impulses arising in other definite tissues or organs. It is quite easy to understand the segmental relationships of such organs as the heart and stomach in prevertebrate life where underlying viscera and overlying skeletal structures are innervated by nerves from a corresponding cord segment, as may be inferred from Fig 2, in which each segment is complete in itself; but to understand the relationships of the viscera in the thorax and abdomen through the cranial nerves to the somatic structures of the head is not so obvious; yet it follows the same segmental law of body development.

In vertebrates segmentation for striated and unstriated muscle, as the relationship is shown

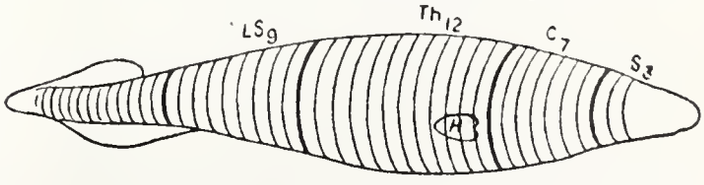

Fig. 2.—Diagrammatic representation of a primitive vertebrate animal—the amphioxus divided for convenience into three segments for the head, seven for the neck, twelve for the thorax, nine for the lumbosacral region, and an indefinite number for the coccygeal region. For clearness of comparison the heart (H) is represented as occupying the same position as in man, so that an adequate stimulus from the heart would cause pain in the distribution of the four upper thoracic nerves covering and protecting the heart. (Ross and Mackenzie.)

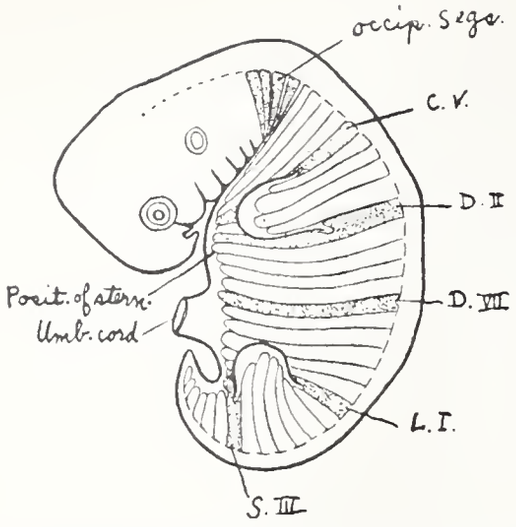

Fig. 3.—Diagram of a human embryo, fifth week, showing the arrangement and extension of the mesoblastic segments. The first and last of each segment entering into the formation of the limbs is stippled (C. V. and D. II, and L. I. and S. III). The position is indicated in which the sternum is formed. (A. M. Patterson.)

through spinal and sympathetic neurons, is evident throughout the entire length of the body. The lateral ganglia send connector fibers segmentally to the smooth dermal muscles just as the anterior roots supply the striated muscles of the body. Furthermore, connector fibers pass peripherally to visceral musculature through definite ganglia, thus connecting them segmentally with the somatic segments. The segmental relationship in man may be seen best in the embryo, as illustrated in Fig. 3.

The segmental relationship between the somatic and endodermal musculature in the vertebrates, as the relationship is shown through the cranial and parasympathetic neurons, however, is just as regular. The endodermal musculature was derived from the appendicular unstriated musculature of the invertebrate which was closely related segmentally to the head and face muscles. Thus in evolution, vagus innervation, which was related to definite somatic head and face segments in the invertebrate was carried as far as the colon as it developed into the digestive tube of the vertebrate.

So we must understand the striated skeletal musculature, the smooth dermal musculature and the visceral musculature, all as being related segmentally in such a manner that the relationships in the more primitive organisms are preserved in the vertebrate.

Reflexes are primarily segmental because the neuron connections of tissues belonging to the same segment are most closely connected. From a clinical standpoint this is extremely important, for it points the way for interpreting reactions which accompany disease.

One can interpret the origin and expression of reflexes only as one understands the manner in which the body has developed from more simple segmental organisms; and can understand them only by possessing a knowledge of the physiologic laws which govern reflex action.

THE LAWS OF REFLEXES

The Law of the Minimal Stimulus.—Sensory end organs in tissues are being subjected to stimulation more or less constantly; but they withstand a certain strength of stimulus before they pick it up and carry it centralward. All stimuli which are insufficient to effect the sensory receptor are called *subminimal.* The one which is just sufficient to effect it is called the *minimal stimulus.* Subminimal stimuli, if repeated in sufficiently rapid succession, are raised to minimal or even above, and cause impulses to be carried to the higher centers.

Each tissue or organ develops sense organs capable of picking up the particular type of sensory stimuli to which that tissue or organ is subjected. The somatic receptors are thus able to pick up and translate into its proper sensory manifestation such forces as heat, cold, light, sound, pinching, cutting and pressure, because the skin naturally comes in contact with all such forces and must develop the sensory end organs for them as a matter of defense. The internal viscera, on the other hand, do not meet conditions which require the development of many types of sensory receptors. The viscera normally never come in contact with such forces as heat, cold, light, sound, pinching and cutting, consequently have no sensory apparatus to pick up this type of stimulus. In order to carry impulses centralward the particular receptor found in an organ must be excited by the particular stimulus which it is designed to convey, and the stimulus must be at least minimal in strength. The term *adequate stimulus* is used to designate that the stimulus is of a quality to excite action. A stimulus cannot produce reflex action unless it be both *adequate* and at least *minimal.*

Sherrington's Law of Segmental Proximity.—Sherrington enunciated a law which governs the production of spinal reflexes as follows:

"Broadly speaking *the degree of reflex spinal intimacy between afferent and efferent spinal roots varies directly as their segmental proximity.*"

And then, by way of making the law more explicit, he says:

"Taken generally, *for each afferent root there exists in immediate proximity to its own place of entrance in the cord, e. g., in its own segment a reflex motor path of as low a threshold and of as high potency as any open to it anywhere.*"

I have suggested that in order to make this law complete it should be understood that this relationship of afferent and efferent neurons in the cord preserves developmental relationships; then it will apply to all viscera, including the lung which otherwise would be an exception, since its skeletal reflexes take place through cervical nerves (the union being completed by intercalated neurons), although the afferent impulses enter the cord through the upper five or six thoracic segments.

The somatic segmental nerves in which reflexes from the principal organs are expressed, according to Sherrington's law, may be inferred from Fig. 4, in which their sympathetic innervation is shown.

Law Governing the Spread of Reflexes.—When a stimulus is sufficient to discharge reflex activity over certain efferent neurons it produces as much activity in the skeletal muscle fibers innervated by those particular neurons as though the

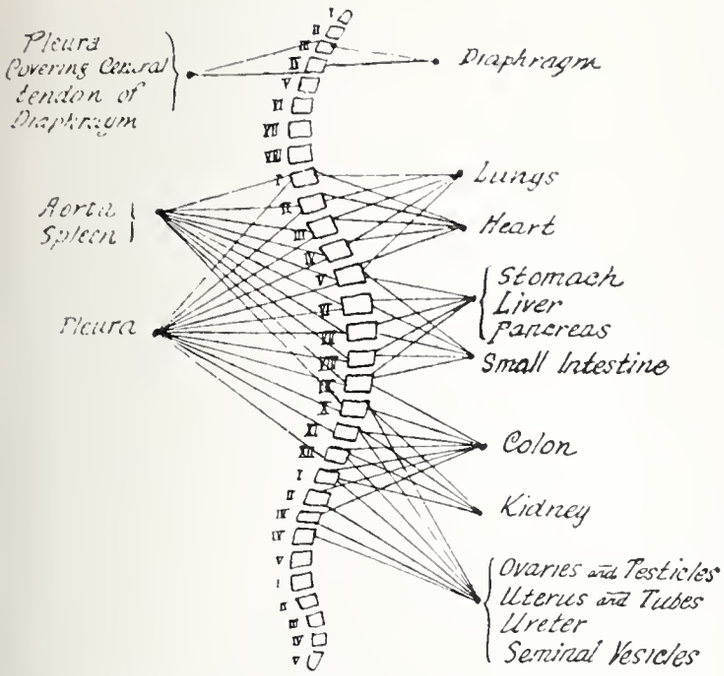

Fig. 4.—The connector neurons for the important thoracic abdominal, and pelvic viscera.

In the figure the connecting neurons are those which belong to the thoracolumbar outflow; except those going to the diaphragm, which are spinal nerves (phrenics). The motor cells for the viscera are found in the various collateral ganglia.

The figure shows that the innervation of the various viscera may be divided into groups. The heart and lungs are innervated from practically the same segments, the upper Ist to VIth thoracic. The stomach, liver, and pancreas from the same segments, Vth to IXth thoracic. The colon, kidney, and pelvic viscera from practically the same segments, IXth and Xth thoracic to IIIrd and IVth lumbar.

In spite of this grouping in innervation, each organ is brought in reflex connection with efferent neurons, both sensory and motor, which are more or less definite, in such a way that the motor and sensory reflexes do not overlap as much as might be indicated. (Symptoms of Visceral Disease.)

stimulus were many times stronger, according to the "all or none" law of activity. That is, when a muscle fiber contracts it produces a maximal contraction. A stronger stimulus cannot make its contraction stronger, but can express itself only by causing activity in more muscle fibers.

The corollary to this muscular action is that a minimal stimulus affects a minimal number of efferent nerve fibers, while a maximal stimulus spreads to many, thus widening the extent of the reflex.

VISCERAL PAIN

Visceral pain in a physiologic sense is not a reflex, but from the clinical standpoint we may be allowed to discuss it as such.

Most confusing to students is the fact that the source of sharp visceral pain is not in the organs affected; but such is true, as may be readily seen in the pain in the arm caused by angina, and pain in the epigastric region in ulcer of the stomach, whether the stomach has a high position as in individuals of sthenic build or is found at the pelvic brim, as in individuals of hyposthenic build, as pointed out years ago by Mackenzie.

There is a feeling of pressure or distention, and one of contraction, in such viscera as the stomach and intestines, that may be noted and found directly in the organ, according to Head. But a true sharp pain cannot be expressed by the sensory receptors of viscera which have never come in contact with or developed a sensory organ for detecting such sensations.

Head has announced the following law governing visceral, or *referred pain:*

"When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility, the pain produced is felt in the part of higher sensibility rather than in the part of lower sensibility, to which the stimulus was actually applied."

It should further be noted that the projection of *referred pain* follows the same laws of the segmentation of the body as is followed by the visceromotor reflex.

In harmony with the preceding discussion, it can be seen that the visceral nerves must be very active in conditions of disease. They are disturbed by all toxemias, and they are irritated whenever a tissue or organ is inflamed. If the stimulation is sufficient it is followed by action in some or many other tissues and organs. Such action is abnormal although it follows the usual nerve paths. It is recognized as a part of the symptom-complex of the particular disease in question.

The best preparation for appreciating visceral reflexes is an understanding of the vegetative nerves, and the laws which govern reflex action. There are certain reflex disturbances in organs which can be produced by stimuli coming from many sources. Instances are cardiospasm and pylorospasm, which may be caused by stimuli from many organs such as the lung, gall bladder, appendix, stomach and intestines, urinary bladder, kidney or generative organs. The stimuli from the different organs here mentioned will enter the cord at all levels from the first dorsal to the upper two or three lumbar segments, but no matter where they enter, before mediation with motor neurons occurs, the impulses will be carried to that part of the cord, thoracic segments five to ten, from which the nerves supplying the pyloric and cardiac sphincters arise.

The fact that stimuli arising in so many organs can cause disturbed function in a single organ, and stimuli from a single organ can cause reflexes in so many organs, is very confusing in itself, but there are always other symptoms, very often other reflexes, which will help to indicate the organ which is diseased. Every important organ has through its afferent sympathetic nerves and their connection in the cord with spinal nerves particular areas for expressing reflexes in the skeletal structures, which are fairly definite, because they follow the laws of segmental relationship.

In my book on symptoms of visceral disease I enunciated the following law as governing the subject of visceral reflexes expressed in skeletal structures:[1]

"Every important internal viscus is so connected in the central nervous system that it is able to produce reflexes through afferent sympathetic and efferent spinal nerves, with definite skeletal structures; and, if acutely inflamed, should show motor reflexes and altered sensation (pain), and if chronically inflamed, trophic changes. Therefore, spasm of muscles, altered cutaneous sensation, and degeneration of muscles, subcutaneous tissue and skin, in areas having definite

limited segmental innervation become important diagnostic phenomena."

While the laws herein discussed as governing reflexes hold in most instances, yet reflexes sometimes fail to follow such laws. Fortunately we have learned some of the important reasons for such failure. We find causes at every physiologic level of the individual. The first cause may be in the cell itself. The electrolytes in the cell may not be present in proper proportion. It has been shown in the experimental heart, for example, that if calcium is in excess in the cell, stimulation of the sympathetic nerves may cause inhibition instead of acceleration.

Again the relative acidity of the tissues makes a difference in nerve reaction and might make uncertainty in reflex action.

Different hormones produce selective action on certain body cells, and when greatly in excess or markedly deficient might throw these cells into disharmony, which in turn might be reflected in any reflex action which was to be expressed in these tissues.

The nerves themselves become hypersensitive at times, their threshold of response becomes lowered and action takes place as a result of what under ordinary conditions would be *subminimal stimulation*. This is often met in clinical practice. We see it particularly in the toxemias of various kinds and in nerves which have been subject to prolonged stimulation, as occurs in such chronic conditions as pleurisy, pulmonary tuberculosis, pelvic troubles, and chronic kidney inflammation. The neurons connected with these organs become so easily affected, that is, their threshold of response becomes so lowered, that pain or discomfort is shown whenever any marked physiologic adaptation is required of the patient. Under conditions of tiring, worry, changes in weather, or other disease, the neurons connected with the particular, injured organ, respond with pain or discomfort, while sensory neurons from other structures react normally; so that, as far as they are concerned, the individual is entirely unaware of the extra load.

Last but not least, reflexes are altered by emotions. Through such harmful emotions as fear, anger, worry, disappointment, discontent, and unhappiness nerve reaction becomes altered, and this manifests itself in changes in the reflexes which are brought about by disease. In the presence of such emotions, reflex action is often exaggerated. We see this in the various disturbances of function in internal viscera and the exaggeration of referred pain.

If man were a machine instead of a thinking, emotional, physiologic and pathologic human being, our problems would be more like test-tube reactions, more certain but less interesting. It is the quest for the hidden, the concealed, the desire to understand the vagaries in man's reactions that make the study of medicine so interesting and so worth while. With a knowledge of the vegetative nervous system, an understanding of the physiologic action of the body cell, an acquaintanceship with the laws of the reflexes, and the factors which act to prevent reflex activity from following these laws, we have at our hand the key to the solution of many of our diagnostic and therapeutic problems.

Monrovia.

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DISCUSSION

Samuel D. Ingham, M. D. (1252 (Roosevelt Building, Los Angeles).—It is axiomatic that a knowledge of physiology is necessary for the interpretation of symptoms of disease. That Doctor Pottenger fully appreciates this, is demonstrated in his discussion of reflexes in the physiologic sense. Carried to a logical conclusion, practically all physiologic activities of the human organism may be considered as reflexes of more or less complicated patterns. It is interesting and important to consider how numerous and accurate are the self-regulating mechanisms which maintain equilibrium within normal limits in all of the vegetative processes of the organism; for instance, the bodily temperature, respiratory exchanges of gases, nutritional and metabolic balances, blood pressure and circulatory functions, internal glandular secretions and innumerable other mechanisms are automatically maintained within the limits of what we call normality. Each and all of these processes may be considered to be regulated through the agency of reflex activity.

It might fairly be said that all symptoms of disease may be read largely in terms of disturbed reflex activity. What seems to have escaped general recognition is that the reflexes manifested through the vegetative nervous system are as definite and as important as those manifested through the so-called cerebrospinal system. For interpretation a knowledge of anatomy and physiology is necessary, at least as regards basic considerations. Based upon the theory of evolution, we have come to consider that all spontaneous activities of the animal organism are essentially utilitarian in their nature, so that symptoms of disease are only variations of normal activities; so any bodily reflex may be hyperactive, normal, subnormal or absent, and clinical experience is necessary for its proper interpretation.

One field of the subject that Doctor Pottenger barely touched is that of reflexes which are dependent upon emotional activities, the disturbance of which have far-reaching consequences. Every emotional state has as a component part a definite, characteristic physical reaction pattern which is distributed through the efferent portion of the vegetative nervous system. Each reaction pattern, therefore, is in itself a reflex action. An unstable emotional equilibrium, while primarily acting or tending to act in a beneficial way in respect to the cause of the emotion, may be harmful in respect to the circulation, glandular activity or other important functions. In the presence of prolonged disturbance of the emotional reactions in an individual, the sensitization and conditioning of reflexes act to produce more or less permanent functional changes and establish unfavorable visceral habits. The clinical picture of neurasthenia may be interpreted largely in terms of such reactions.

The subject of Doctor Pottenger's paper is so large and so important that he might write a book as a supplement to his very excellent paper.

Lewis Gunther, M. D. (University of California Medical School, San Francisco).—The importance of the segmental arrangement of the central nervous system cannot be overemphasized. Since visceral symptoms are transferred to the periphery over the spinal nerve roots, it is obvious that an understanding of visceral pain presupposes a knowledge of the visceral reflex arc over which such transference takes place. Doctor Pottenger has amply supplied us with information regarding the nature of these reflexes, and the spinal nerve roots that take part in the reflex, in this paper, and in his book on the symptoms of visceral disease. It also stands to reason that a working

knowledge of the nerve-root topography must be possessed by the practitioner and student of medicine who desires to interpret pain.

In the interpretation of symptoms, cutaneous pain is a leading symptom. It may have its origin commonly at three sites, viz., in the peripheral nerve, in the nerve root, or in an internal organ. Medical students, as a rule, familiarize themselves with the outstanding examples of the visceral sensory reflex, more commonly spoken of as referred pain, in such conditions as gall-bladder disease, angina pectoris, and acute appendicitis. Of the three possible sites of origin of cutaneous pain, the nerve root has received the least attention. Since the sensory visceral reflex utilizes the posterior nerve roots for the transference of pain originating in an organ but appreciated at the periphery, the differentiation of symptoms having their origin in the nerve roots from those due to the sensory visceral reflex then becomes very important.

The visceral reflex has become a tool of utmost value to the medical profession, and for surgeons in particular. Just as the earlier failure to recognize the visceral reflex has led to wrong diagnoses, the present, fairly widespread lack of appreciation that cutaneous pain may have its origin in the peripheral component of the visceral arc, namely, the nerve root itself, has also led to unnecessary error in surgical diagnosis and procedure.

The hyperesthetic areas of Mackenzie, and the zone areas of hyperalgesia described by Head, associated with visceral disease, in very few instances occupy the entire area of distribution of the particular nerve roots which are included in the reflex arc. Examples might be cited such as the right lower quadrant sensory disturbances found in acute appendicitis where the maximum pain and tenderness is generally in the region of McBurney's point, the remainder of the tenth, eleventh and twelfth dorsal roots posteriorly being uninvolved; the right upper quadrant pain in acute cholelithiasis and cholecystitis, where the maximum disturbance may be over the topographical region of the gall bladder, at the end of the tenth rib, or at the angle of the scapulae, all of these points lying within the distribution of the sixth to ninth or tenth dorsal roots, but the major part of the distribution of these roots remaining unaffected; the pain of gastric ulcer which, although referred over the same roots as the former, is maximum in the mid-epigastrium. This is in contrast to the disturbances met with when the pathology has its origin in the nerve root itself. Objective and subjective sensory alterations in the latter usually involve the entire distribution of the root and are not infrequently bilateral.

Doctor Pottenger has pointed out that long standing pathology in a viscus allows subminimal stimuli to become effective, which ordinarily would not be brought into consciousness. This again is in contrast to nerve-root pathology, for a long-standing process in the latter, due to nerve degeneration decreases the conductivity of the nerve, and an adequate stimulus becomes inadequate. Cope has pointed out that the objective sensory alterations in the visceral sensory reflex consist of cutaneous hyperesthesia, as well as hyperalgesia. These sensory changes usually consist of alterations in light touch as demonstrated with the cotton tuft or a very light stroke with the pin point. Similar sensory disturbances may be found generally during the first five years of nerve-root involvement incident to a spinal osteoarthritis, and in early involvement of the spinal roots in other diseases of the spine. However, in either instance, the prolonged disturbance in the spinal nerve root ultimately results in a *decrease in objective sensibility*. In osteoarthritis the decrease rarely affects more than light touch as demonstrated with the cotton tuft, whereas in other diseases of the spine hypesthesia and anesthesia to all types of epicritic cutaneous sensation will occur. In all instances the alteration in sensation involves the *entire nerve-root distribution*.

Diffuse pain, lying in the distribution of many roots, or marked sensory changes, especially a decrease in sensation, should stimulate a search for pathology outside of the viscera. Errors in diagnosis can only be avoided if the existence of cutaneous sensory disturbances, referred from pathology in the nerve root itself, is considered in the differential diagnosis of pain transferred to the periphery over the visceral reflex arc.

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Doctor Pottenger (closing).—In the discussion of this paper Doctor Ingham has well emphasized reflexes due to emotional activities. I have endeavored to emphasize this on many occasions. During the past fifty years medicine has thought too much in terms of structure. Physiologic balance may be disturbed just as much by emotional as by physical stimuli. Emotional reflexes make up a large part of the picture that we are dealing with in clinical medicine. He also emphasizes rightly the reflex nature of all physiological and pathological action.

Among other things Doctor Gunther makes an important distinction between the hyperesthetic and the hyperalgesic areas, as a result of visceral disease and the pain due to disease of nerve roots. The former may occupy only a part of the area supplied by a given nerve, the remaining portions being uninvolved. We see this constantly in reflexes from the viscera. The reflex relationship involves individual fibers rather than the nerve as a whole, while nerve-root disease involves the entire distribution of the given nerve.

The nature and laws of reflexes demand careful study on the part of medical men, because action in all parts of the body is correlated and integrated through the nerves and is subject to reflex effects.

In this paper I have endeavored to bring forth principles underlying the reflex, believing that if they are better understood, clinical symptomatology will be simplified.

TREATMENT OF MALIGNANT TUMORS OF THE BLADDER, WITH SPECIAL REFERENCE TO SURGICAL DIATHERMY*

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Discussion *by J. C. Negley, M. D., Los Angeles; Joseph Walker, M. D., Los Angeles.*

SURGICAL diathermy is a term used to designate the coagulation and consequent destruction of tissue by means of a bipolar high frequency current. The heat is generated within the tissues because of the resistance offered by them. The degree of heat and depth of penetration are regulated by the amount of current in milliamperes, the length of time applied, the size of the electrode, the relative resistance of the different tissues between the electrodes, the loss of heat by radiation, and the loss of heat through the circulating blood. The highest temperature is at the point of contact of the smaller or active electrode with the tissues.

Tesla and d'Arsonval in 1891 found that heat was produced when the body was transversed by a high frequency current. D'Arsonval began the use of this current in the treatment of disease in 1898. Doyen advocated the destruction of tumors by electrocoagulation in 1907. Nagelschmidt coined the word "diathermy" in 1908. Corbus[1] states, however, that Kolischer of Chicago demonstrated the first patient suffering from a bladder neoplasm treated by diathermy in 1901. The former in association with O'Conor has used

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surgical diathermy exclusively for the destruction of vesical neoplasms during the last few years. Beer introduced his very valuable method of destroying bladder growths through the cystoscope in 1910.

The majority of bladder growths are epithelial in type. They may be simply, although comprehensively, classified as benign papillomata, papillary carcinomas, and infiltrating carcinomas. About 50 per cent of bladder growths are malignant. Almost one-half are located on the trigone or in the region of the ureteral orifices. Papillary carcinomas are much more frequent than the infiltrating type of growth. Many carcinomas are extensions from the prostate; according to Kaufmann,[2] 66 2/3 per cent. These facts should be taken into consideration in deciding upon the method of treatment of this condition.

SYMPTOMS AND DIAGNOSIS

In addition to hematuria, the cardinal symptom of both benign and malignant growths, induration, sloughing, necrosis and resistance to fulguration are important symptoms of malignant tumors of the bladder. If a pedicle is present it is usually thicker than that of a benign growth. Palpation through the rectum or vagina is often valuable in the diagnosis of this condition. Growths which are palpable are usually malignant. An accompanying severe cystitis, which is responsible for frequent urination and marked dysuria, is common. Carcinoma occurs more frequently in older patients, most often in the fifth decade. That some apparently benign growths are malignant and others thought to be malignant are benign, may be a reason why some published series show unusually favorable results. Carcinoma of the bladder is more common in males. In MacKenzie's[3] series of 118 cases of carcinoma of the bladder ninety-three occurred in males. The writer cystoscopes probably twice as many women as men and finds not more than half as many bladder neoplasms in women. MacKenzie also found an equal number of malignant and benign tumors in men and women patients. This corresponds with my experience.

RESULTS WITH VARIOUS METHODS OF TREATMENT

Although surgical diathermy has not been used so extensively nor for so long a period as surgery, radium, and the x-ray, sufficient time has elapsed to approximate the relative value of this treatment.

I. SURGERY

Sir John Thomson-Walker[4] states that, following 126 partial resections of the bladder for malignant growths, there was an operative mortality of 6.34 per cent. Of eighty-one traced survivors there were recurrences within three years in 27.16 per cent, and after three years in 6.17 per cent. There were no recurrences in three years or more in 34.50 per cent. Judd[5] states that following radical surgery for carcinoma of the bladder seventy-eight traced cases were living and eighty-seven dead. No doubt in every series of untraced cases a very large proportion are dead. Scott[6] and McKay's statistics show that at least thirty-six of sixty-six patients whose bladders were resected for carcinoma at the Brady Urological Clinic died or were unimproved. Four died from other causes. Thirty-eight per cent of sixty-three cases operated on by Young[7] were alive one to ten years after operation, and 8 per cent were alive over six years. Sixty-seven and two-tenths per cent of sixty-one cases operated upon by Lower[8] died, fifty-one and two-tenths per cent in less than one year. Eight were living less than one year after operation; five between one and two years, four between two and three years, one five years, one six years, one eight years, one ten years, and one eleven years after operation. Twenty of seventy-five patients operated upon by Squier[9] were alive two to eight years after partial resection. Thirteen of twenty-eight patients whose bladders were resected by Kidd[10] were cured. Following excision by MacKenzie in twenty-two cases twelve were cured, two improved, the growth recurred in six and two died. So-called cures were followed from six months to seven years, most of them from one to three years. Beer[11] operated on twenty-eight papillary carcinomas. The operative mortality was 14 per cent. The growth recurred in 25 per cent. Sixty per cent appeared to be cured. In Beer's series of infiltrating carcinomas there was an operative mortality of 21 per cent and recurrences in 55 per cent. Forty-five per cent of those surviving the operation were apparently cured. The bladder was resected in three patients in Negley's[12] series, two died, and no record was obtainable in the third case. Chute,[13] although favoring surgery, reports a 100 per cent mortality following total cystectomy.

As will be seen from these statistics the primary mortality, as well as that occurring during the first year following resection, is very high.

II. RADIUM

Barringer[14] reports that 15 or 75 per cent of twenty patients with papillary carcinomas who were treated with radium were cancer-free for as long as observed, eleven remaining so for more than five years. Twelve of these were proved malignant by pathological examination. Eighteen, or 35 per cent, of fifty-one patients with infiltrating carcinomas, also treated exclusively with radium, were cancer-free, twelve having remained so for more than five years. His series included those in which the carcinomas had been small and treated transurethrally as well as those in which radium had been implanted following suprapubic exposure. No cases were refused operation if the carcinomas were thought to be confined to the bladder. Barringer has never seen recurrence later than six years. Beer states that his results with radium treatment have not been nearly so favorable as those of Barringer. In sixteen cases he introduced radium emanation seeds through the cystoscope. Eight cases were apparently cured and eight recurred. In thirty-one cases in which he considered resection impossible he applied radium. The mortality was 33 per cent. Thirty

were apparently cured although all of these had not been examined cystoscopically.

Keyes [15] believes that radium treatment gives better results than surgery. As he has employed this method for only two years he states that he does not know how permanent the results may be. In five borderline cases there were no operative deaths and no cancer deaths. One died of cardiac decompensation ten months after radium application and four were controlled, cystoscopy showing absence of any tumor. Of nine cases of papillary carcinoma accounted for which were treated exclusively by radium five were "controlled." Of four cases of infiltrating carcinomas accounted for, all died cancer deaths.

Scott and McKay of the Brady Urological Institute report that, of thirty-four patients with malignant tumors of the bladder who received suprapubic implantation of radium, eleven died in less than one year, eleven others lived only one year, one lived only two years, and three died in less than one year from other causes.

One of the most objectionable features of radium therapy is the bladder spasm due to radium burn.

III. X-RAY

Mann reported a series of nineteen cases of malignant tumors of the bladder treated with x-rays. There were thirteen recurrences, nine dying in two years or less. The results were equally discouraging when both x-ray and radium were used. Water,[16] however, states that excellent results were obtained at the Brady Urological Clinic with a combination of x-ray and radium. Schmitz and Laibe [17] treated thirteen cases of carcinoma of the bladder with deep x-ray therapy up to April 1, 1925. Seven patients were free from symptoms, one for thirty-four months, two for twenty-six months, two for twenty months, and two for fourteen months. Three cases were "inconclusive" and three died. Twelve of the patients in Negley's series received x-ray treatment. Nine were dead and three, one of whom also received radium, were living one month to one year after treatment. Of these, however, one was unimproved and the growth recurred in the others. MacKenzie treated six so-called solid carcinomas of the bladder which he considered inoperable with deep x-rays. One died, three were unimproved, and two improved. Scott and McKay administered deep x-ray therapy to ten patients. All died of tumor. Beer also states that he has not had a single cure with x-ray therapy.

Objectionable features of x-ray therapy are burns and frequent local and systemic reactions.

IV. FULGURATION

Thomson-Walker [18] treated 119 cases of benign papilloma of the bladder transurethrally. There was no postoperative mortality, and 74.4 per cent were free from recurrence from one to eleven years. Twelve of MacKenzie's nineteen patients with malignant papillomas of the bladder were cured and seven improved by repeated fulgurations. So-called "cures" were followed six months to seven years, most of them one to three years. In Negley's series of malignant bladder tumors the twenty-six who were treated with cystoscopic fulguration were living from one month to two and one-half years after operation.

V. PERCY CAUTERY

In Negley's series seventeen patients were treated with the Percy cautery. Sixteen were dead.

VI. UNTREATED CASES

Bumpus [19] reports that the average duration of life in fifty-one untreated cases at the Mayo Clinic was but 10.64 months, from the onset of symptoms 2.7 years.

VII. SURGICAL DIATHERMY

O'Conor [23] reviewed fifty cases of carcinoma of the bladder treated exclusively with surgical diathermy either transurethrally or following suprapubic exposure by Corbus and himself during the seven years prior to July 1, 1926. There were four hospital deaths. Twenty were symptomatically well with negative cystoscopic findings for a period of from one to seven years. Twenty-six patients were uncured. The bladder wall was perforated in but one instance. This patient developed a vesicorectal fistula and died from general sepsis and myocarditis. Corbus states that most of the deaths following surgical diathermy occur because of urinary sepsis due to temporary obstruction when the ureters are coagulated. Scott and McKay on the other hand, reporting four cases of infiltrating carcinoma, the type of growth offering the worst prognosis, state that there was one postoperative death, one patient was free from tumor one year after operation; two died within one year after treatment with surgical diathermy. Kolischer, however, is even more optimistic than Corbus and O'Conor. He finds that the primary mortality is only 5 to 10 per cent, while about 75 per cent of the patients treated with surgical diathermy remain well. Joseph Walker in a personal communication states that he has had the opportunity of examining many of Corbus and O'Conor's cases long after treatment with surgical diathermy, and the results have been most satisfactory. He also had excellent results with this method of treatment in several of his own cases and believes it to be of greater value than any other procedure. Walther and Peacock [20] state that surgical diathermy has proved itself superior to other methods for the treatment of vesical neoplasms. Judd, although advocating total or partial cystectomy, recommends surgical diathermy when the growths are too extensive for radical removal and when there are contraindications to this procedure such as cardiac or renal disease. At the Mayo Clinic nineteen cases were treated with surgical diathermy. Although too short a time had elapsed to determine ultimate results "the immediate results were extremely gratifying." There was one hospital mortality. Of ten patients traced, seven were living and three dead. In Negley's series twenty-one patients were treated with surgical diathermy. Seven were dead from twelve days to seven months after operation and fourteen living from one month to two and one-half years after operation. Eisendrath [21]

states that he is using surgical diathermy frequently in carcinoma of the bladder and is pleased with the results.

ADVANTAGES OF SURGICAL DIATHERMY

Surgical diathermy unlike surgery sterilizes the field. It does not open blood vessels or lymphatics, consequently there is no danger of disseminating tumor cells and thereby producing distant metastases. There is seldom any bleeding; therefore no time is lost ligating blood vessels. There is very little surgical shock. The heat is developed in the tissues and the degree of heat can be regulated; the depth of penetration is more accurately determined and the tissues may be coagulated to any depth. Its effect is immediate. The active electrode is cold when applied and it does not burn or char. Cunningham, Graves and Bovie [22] have devised a method of measuring the degree of heat induced in the tissues by means of thermocouples. Surgical diathermy is more accurate than radium.

Even if the patient's general condition warrants total cystectomy or even partial resection the operative mortality is much higher and the probability of secondary infection of the kidney much greater than that which follows surgical diathermy, especially if it is necessary to transplant one or both ureters. The discomfort suffered by the patient after total cystectomy is often worse than death. With surgical diathermy it is often possible to remove tumors in cases unsuitable for more radical operative procedures. If not cured patients at least live longer and are more comfortable. The pain and hemorrhage are always relieved.

TECHNIQUE

Although many bladder papillomata are originally benign, probably all are potentially malignant, and the statement that blood in the urine is a symptom that demands immediate cystoscopic investigation to determine its source cannot be too often repeated. Unfortunately every urologist still sees patients who have been given some urotropin or other internal medication, perhaps with a few bladder irrigations to control their symptoms. If the blood disappears from the urine the patient is discharged. Later when hematuria reappears the pathologic condition responsible for the bleeding may be far advanced and the prognosis hopeless. Fortunately, however, because of scant lymph supply, carcinoma of the bladder metastasizes late. The blood should be examined for syphilis in every case. Even with negative findings a short course of antiluetic treatment is often indicated as a diagnostic measure before subjecting the patient to any operative procedure. Walker mentions a very interesting case diagnosed carcinoma of the bladder which proved to be luetic.

When it is necessary to open the bladder preceding the application of surgical diathermy infiltration anesthesia of the abdominal wall, morphin and scopolamin, spinal anesthesia, or gas oxygen are most frequently employed. There is danger of explosion if ether or ethylen are used.

It has been my practice to treat all bladder tumors which were apparently benign as well as borderline cases through the operating cystoscope. One of the important advantages of cystoscopic treatment is the possibility of satisfactory inspection of the bladder soon after this procedure. MacKenzie believes that single or repeated fulgurations will cure one-third of the papillary carcinomas. In the presence of frank or suspected malignancy in those cases that have not responded to transurethral treatment I open the bladder suprapubically and apply surgical diathermy by means of the disc electrode. The latter is kept in close contact with the growth in order to prevent sparking and carbonization, which interferes with the penetration of the current. When pedunculated, the pedicle is severed with the galvanocautery or Paquelin cautery; the surrounding apparently healthy tissues, and then the tumor are thoroughly coagulated by means of surgical diathermy. The heat is applied slowly and gradually increased until it can no longer be tolerated by a gloved finger in the rectum or vagina. This finger also serves to elevate the base of the bladder, the most frequent site of malignant growths. In the absence of marked infection or bleeding the bladder is sutured without drainage. If suprapubic drainage is necessary a very small tube is used. This is removed as early as possible. If stenosis of the ureteral orifices occurs they should be dilated later through the operating cystoscope. The bladder should be inspected at intervals during the life of the patient.

CASE REPORTS

Case 1.—An unmarried woman, fifty-seven years of age, complained of marked frequency of urination when standing, for the previous five days. She had noticed blood in the urine for three or four days about every three months for the past fifteen months. She had suffered from infantile paralysis and had been crippled because of paralysis of the right leg since that time. The family history was not significant. Her urine contained numerous pus and blood cells. The phenolsulphonephthalein output was 12 per cent for the first and 10 per cent for the second hour. Blood urea thirty-nine milligrams per one hundred cubic centimeters. Cystoscopy revealed an irregular growth about the size of a walnut, and with a short pedicle, just posterior and external to the right ureteral orifice. The bladder mucosa was injected and somewhat trabeculated. The bladder was opened suprapubically, the tumor removed with the galvanocautery and surgical diathermy applied to its base. Pathological examination showed carcinoma. The bladder was closed around a mushroom catheter. Recovery was uneventful except for slight dysuria and frequency beginning nine days after operation and lasting a few days. No evidence of recurrence was found at a recent cystoscopy two years and one month after operation.

Case 2.—A married woman, forty-eight years old, entered the hospital with the following history: Fifteen years previously she had noticed blood in the urine. This disappeared immediately after taking some medicine prescribed by a physician. Four years ago she had a marked hematuria, due to a polypus which was removed through the cystoscope. Five weeks ago she voided blood for a week and suffered from severe pain in the suprapubic region which occasionally radiated down the thighs. These symptoms disappeared following rest in bed and opiates. Cystoscopy revealed a soft gelatinous sessile mass about the shape of a man's thumb at the site of the left ureteral orifice. Numerous small gelatinous masses were scattered about the margins of the larger growth. Biopsy proved this to be malignant. The x-ray films showed

no evidence of metastases. The bladder was opened suprapubically and the surgical diathermy applied. A drainage tube was inserted and the wound closed around it. Eight days later urine escaped from the lower angle of the wound. Cystoscopy at this time revealed a small raised papillomatous area at the site of the former growth. This was fulgurated and seven radium emanation seeds were implanted. A retention catheter was again inserted through the urethra. It was removed nine days later and there was no further drainage through the abdominal wound. Two weeks after the last fulguration a smaller red protruding area was fulgurated. Further cystoscopies, the last eleven months after operation, showed no recurrence of the growth. The patient stated that she had gained seventeen pounds and felt "fine." She died five months after the last cystoscopy from acute intestinal obstruction and shock following operation for the removal of gall-stones.

Case 3.—A woman, thirty-three years of age, complained of pain in the sacral region and occasionally of a little blood in the urine at the end of urination for a period of eight months. A physician had told her that she was suffering from tuberculosis of the kidneys. Her urine contained a few pus and an occasional blood cell. Smears and guinea-pig inoculations were negative for tuberculosis. Her bladder capacity was 240 cc. There was a stricture (F23) at the external urethral meatus. Cystoscopy revealed several regular indurated masses just inside the bladder sphincter extending from the internal urethral meatus to the region of the ureteral orifices. The latter were hidden by the growth. The Wassermann was negative. Diagnosis: Carcinoma of the bladder. The x-ray appearance of the pelvic bones was normal. No improvement having resulted from fulguration, the bladder was opened suprapubically and diathermy applied to the growths. The amount of heat was limited to that which could be tolerated by the gloved finger in the vagina. A drainage tube was inserted and the bladder and abdominal wall closed around it. Five days later the tube was removed and a retention catheter introduced through the urethra. The wound closed in about four weeks, but reopened when the retention catheter was removed. About four months after operation induration and thickening of the urethrovaginal septum was found on examination. This has gradually increased until at the present time the upper margin projects above the surface of the urethral wall and below the surface of the anterior vaginal wall. Biopsy revealed chronic inflammatory tissue only. The suprapubic fistula closed shortly after the insertion of a retention catheter through the urethra, but reopened when the catheter was removed. This was repeated several times before the fistula finally closed. The patient has gained twelve pounds in weight since operation, and at the present time, two years and three months after operation, there is no recurrence of the growth in the bladder.

Case 4.—An architect, sixty-three years of age, complained of hematuria and difficulty in urinating for four and one-half months and dysuria and frequency for one and one-half years. His sister had pulmonary tuberculosis, and a grandfather had cancer of the face. The urine contained numerous pus and blood cells. Examination of the bladder revealed a large sessile tumor the size of an orange on the right lateral wall of the bladder just inside the sphincter and another the size of a walnut at the fundus of the bladder. The median lobe of the prostate was enlarged. The protruding portions of the tumor were removed and surgical diathermy applied. The median lobe of the prostate was also removed. The patient died six days after operation. I believe that I made a mistake in performing a one-stage operation in this case and that the chance of recovery would have been much greater if the prostate had been removed at a later date. Pathological report: Carcinoma of the bladder. This was of the infiltrating type.

Case 5.—A man, sixty-one years of age, complained of frequent and painful urination of ten weeks' duration. For the past two or three weeks the pain had been continuous. He noticed blood in the urine on one occasion, several weeks before entering the hospital. His urine contained fifteen to twenty pus cells per high power field, many red blood cells and a light cloud of albumin. Phenolsulphonephthalein output was 15 per cent for both first and second hours. Blood urea thirty-five and twenty-five hundredths milligrams per one hundred cubic centimeters. There was moderate enlargement of the prostate gland. Cystoscopy revealed a sessile, flat, irregular growth involving the trigone and bladder neck. January 22, 1925, the bladder was opened suprapubically and surgical diathermy applied. The tumor was of the infiltrating type. Convalescence was slow. The patient left the hospital about one and one-half months after operation with some drainage through the suprapubic fistula. The delayed closure was probably due to the enlargement of the prostate. The patient was not seen after leaving the hospital, having taken up Christian Science. I am advised, however, that he is apparently in good health and following his usual occupation at the present time, three years and three months after operation.

Case 6.—A police captain, sixty-four years of age, had occasionally noticed blood in the urine during the previous two months. No other urinary symptoms were present and he had never suffered from other symptoms of genito-urinary disease. He had pneumonia and typhoid fever thirty years ago. He had had a slight cough and considerable postnasal discharge, due to sinus infection for a number of years. Occasional sonorous râles were heard over the midscapular region. Numerous extra systoles of the heart were present. The liver was enlarged, the lower border extending about four centimeters below the costal margin. There was no residual urine. The Wassermann was negative. His family history was not significant. Cystoscopy revealed a moderate enlargement of the prostate gland and an infiltrating sessile tumor the size of a large walnut at the site of the right ureteral orifice. The bladder was opened suprapubically. That portion of the growth above the surface of the bladder wall was excised with the thermocautery. The surgical diathermy electrode was applied to its base until the degree of heat could no longer be tolerated by the gloved finger in the rectum. The patient's condition did not warrant prostatectomy. A mushroom catheter was inserted into the bladder and the bladder and abdominal wall closed around it. Pathological report: Carcinoma of the bladder. The patient was out of bed nine days after operation. A phlebitis appeared in the left leg on the following day. This subsided slowly. Cough was troublesome. Spasmodic contractions of the bladder were somewhat troublesome, but disappeared following the escape of a large piece of sloughing tissue through the abdominal wound. There was a little nausea for several days one month after operation. Six weeks after operation a suppurating right epididymitis was incised and drained. The patient left the hospital three and one-half months after operation in fairly good condition although the suprapubic fistula had not completely closed. This was in all probability due to the enlarged prostate. Cystoscopy at this time revealed only scar tissue at the site of the former growth. He was able to resume his duties shortly after leaving the hospital and continued to work until about one week prior to his death from myocarditis one year after operation. No evidence of recurrence of the bladder tumor was found.

Case 7.—A rice miller, twenty-eight years of age, complained of frequent and painful urination of two weeks' duration. The urine had been more or less bloody for the same period. The urine contained numerous pus and blood cells. Cystoscopy revealed an injected bladder mucosa and a sloughing tumor about the size of a walnut and with a broad pedicle one centimeter posterior to the left ureteral orifice. This bled readily. The Wassermann was negative. The bladder was opened suprapubically February 4.

1928, and the pedicle severed with the galvanocautery. The base of the growth and surrounding healthy tissue were coagulated by means of surgical diathermy. The bladder was closed and a retention catheter inserted through the urethra. The latter was removed on the tenth day. The pathological report on the portion of the growth removed was benign papilloma, but I have no doubt that if the base could have been examined it would have proven to be malignant. The patient is free from symptoms and the bladder cystoscopically negative at the present time, six months after operation.

SUMMARY

Seven patients with carcinomas—four papillary and three infiltrating in type—were treated with surgical diathermy through the open bladder. Four are alive and free from recurrence—one three years and three months, one two years and three months, one two years and one month, and one six months after operation. Two died of other causes, but were free from recurrence—one, one year and the other, one year and four months after operation. One patient died six days after operation.

COMMENT

I realize that seven cases treated with surgical diathermy is a small series, but these, together with the increasing number of favorable results reported in the literature, justify the opinion of Corbus, O'Conor, Kolischer and others as to its value. In addition to prolonging life it adds much to the comfort of those patients who are not cured. I believe that we are justified in the conclusion that surgical diathermy is of greater value than any other procedure and that it is destined to become the most popular method of treatment of malignant tumors of the bladder.

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DISCUSSION

J. C. Negley, M. D. (527 West Seventh Street, Los Angeles).—Since so many statistics are mentioned, we will study that phase first. From the literature and his own experience, he reports 1124 cases. For convenience we list deaths, recurrences and unimproved as Class 1:

Surgery (partial or total resection or bladder), 634—373, Class 1, or 58 per cent.

Radium (either through cystoscope or cystotomy), 152—82, Class 1, or 54 per cent.

X-ray (mostly inoperable or hopeless), 60—45, Class 1, or 75 per cent.

Fulguration through the cystoscope, 164—26, Class 1, or 6 per cent.

Percy Cautery, 17—16, Class 1, or 94 per cent.

Surgical diathermy through opened bladder, 97—37, Class 1, or 38 per cent.

Total number of cases, 1124—579, Class 1, or 51 per cent.

Further study shows cystoscopic fulguration rates lowest percentage in Class 1, perhaps due to earlier diagnosis, more tumors in benign class, smaller sized tumors and less infiltration. Study brings up again the plea and warning to the profession at large for reference of all hematurias or intractable bladder cases of any kind to the urologist for cystoscopic diagnosis.

Next lowest in Class 1, is surgical diathermy, through an opened bladder. The reasons for these results are very ably described in the body of Doctor Stevens' paper. Radium, next lowest in Class 1, presents cause for further thought for an enthusiastic and skilled user of radium: reports 75 per cent of cures in papillary carcinomas and 35 per cent cures in infiltrating carcinomas, while his colleagues, just as skilled but not so enthusiastic, report only 24 per cent of cures and 76 per cent failures. Surgery, next lowest in Class 1, seems to be rapidly losing favor, and articles in the recent literature on surgical diathermy treatment of bladder tumors by former exponents of surgical methods, would seem to indicate that surgical diathermy is becoming the method of choice. X-ray has next to the highest mortality rate, explained, perhaps, because it is used most often in hopeless or so-called inoperable cases. This explanation also holds for the Percy cautery cases, which I reported in 1927, for they were nearly all hopeless cases and the end-result would have been the same, regardless of the method used.

One is impressed in a study of this subject by two things: first, the multiplicity of methods used; second, the wide variance of results quoted by different surgeons. These facts lead to the conclusion that we are progressing rapidly in the treatment of bladder malignancy, but most of us are still pessimistic. My preference in treatment of bladder tumors is fulguration through the cystoscope, followed by x-ray, provided

the tumor is accessible and not too high a degree of malignancy. Large size alone should not deter one from using this method.

Surgical diathermy through the open bladder, followed by a course of x-ray, seems best in inaccessible or highly malignant tumors. In 1927 I reported twenty-one cases under this method, fourteen then living, but now I find that four have died and two have recurrences, which may be amenable to treatment. X-ray and radium have not become widely used because the average urologist knows little of their action, dosage, etc. Vice versa, x-ray and radium workers know little of the use of a cystoscope. Better coöperation would probably bring better results.

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Joseph Walker, M. D. (7046 Hollywood Boulevard, Hollywood).—Doctor Stevens' conclusions and results verify the splendid work of Corbus and O'Conor and other originators of diathermy as the method of choice in treating malignant tumors of the bladder.

In saying that diathermy is the method of choice in treatment of this class of cases we cannot compare entirely the *number* cured and not cured. Statistics of cases subjected to resection or to diathermy are misleading, for the reason that far more advanced cases have been treated by diathermy than could possibly be treated by resection. For this, and other self-evident reasons, statistical judgment is not in agreement with the facts.

I think the case reports alone of Doctor Stevens furnish ample justification for the following questions and answers:

Does resection in any stage of a malignant tumor of the bladder offer anything more satisfactory than diathermy? It does not.

Is resection applicable to as large a number of cases as diathermy? It is not.

Is the surgical risk less with resection than with diathermy? It is vastly more.

Is the suffering of the patient more with resection than with diathermy? It is.

Is shock more with resection than with diathermy? It is.

Is the time in the hospital greater with resection than with diathermy? It is.

Then, is there any basis for an argument in favor of resection? There is none, in fact.

As to fulguration, as that expression is generally understood: Is the therapeutic-fulguration-diagnostic test justifiable as a method of treatment? I think the arguments against it outweigh those for it. At best, it seems to me, justifiable only in the aged and very weak. To me to wait for months or years to see if a growth is malignant when you know at once that it is potentially malignant before applying your best treatment, is a judgment no better founded than would be the judgment of a lawyer in saving his best evidence for his appeal.

My experience with radium and x-ray is too limited for me to express an opinion of any value. In a series numbering the same as Doctor Stevens' I have had one death and no recurrence after from one to three years. I have carefully inspected the bladders of many of the cases of Corbus and O'Conor three to five years after operation and can say, from my own experience and what I have seen of theirs, that on a basis of facts and results, surgical diathermy applied intelligently and with skill is of its own right the method of choice in the treatment of malignant tumors of the bladder. I feel sure that Doctor Stevens' frank report of his cases will give us all more confidence in attacking this the most unwelcome problem confronting urologists.

THE HOSPITAL AND THE INTERN*

By Percy T. Magan, M. D.
Los Angeles

THERE exists at the present hour a very sharp division of opinion in medical circles concerning the education of students of the healing art.

One prominent group takes the position that the curriculum of today is too long, too severe, and uselessly encumbered with minutiae. These men are of the opinion that under current methods we are turning out a type of graduate unfitted and unwilling to cope with the problems and requirements of ordinary practice. Such are fervently insistent that fundamental and drastic changes as to amount and kind of subject-matter taught, methods of teaching, and manner of persons employed as professors, shall be inaugurated with all possible dispatch in the schools of medicine of our universities.

Opposed to the above school of thought stands another band of eminent medical authorities who, with equal fervor, maintain that the medical colleges of the present time are so far superior to those that have gone before that there can be no comparison. They aver that the curriculum is nigh unto the very zenith of efficiency, and that modern medical science is being dispensed to the student as ably and as thoroughly as conditions will permit.

AGREEMENT CONCERNING THE INTERN YEAR

Happily, however, in this maelstrom of conflicting opinion there is one point upon which both sides unanimously agree. I refer to the value of the intern year. While some men hold that the premedical period is unduly long and that the regular four-year course should be abbreviated, they are nevertheless agreed in the idea that the intern year must remain, and must be rendered more useful, by the best thought of the leaders in medical school and hospital management.

"THE WEIGHTIER MATTERS"

What now are the most important things owing the intern during this crucial year? What shall be the underlying scheme for his professional advancement? In his first and second years he has been indoctrinated with the basic sciences of medicine. During his third and fourth years he has been introduced to a didactic and clinical study of medicine, surgery, obstetrics, gynecology, and the specialties. Speaking by and large, his head has been very well filled for the most part with excellent medical material. But how to empty this knowledge in a wise and becoming manner onto his tongue and into his hands for the benefit of patients, he knoweth not. Speaking in the language of banking and commerce, his learning is to a very great extent a frozen rather than a liquid asset.

Now to my mind, the lares and penates—the household gods of the fifth or intern year, must hold it as their most sacred duty to liquefy, purify, and sanctify knowledge already acquired by the student, and release it for the benefit of afflicted

* Read before the American Hospital Association, San Francisco, August 8, 1928.

man- and womankind. It is this that Minerva Medica requires at the hands of these priests of medicine who are charged with the responsibility of training the acolytes of her cult at the flaming altars of her hospitals.

How, then, shall this be best brought about?

RESPONSIBILITY

The fifth-year student taking his internship is as the eaglet learning to fly. These young eaglets are old enough and strong enough to fly. But there is a tendency to cling to the student rather than to the practitioner viewpoint, of thought and action. They fear to venture forth upon the untried air, or to trust their fluttering wings. But they must learn to fly. There are fine joys of service awaiting them in the wide areas of medical space. Hence it is incumbent upon their preceptors in the hospital to stir up their mental nest and drive them forth. When once they are launched upon the upbearing air and learn by glad experience the ecstasy of flight, how grateful will they be to the faithful preceptor, who flinched not from the hard task; "and who still swoops and flies beneath them, ready to catch them up if their powers should flag, and to bear them sunwards."

ATTENDING STAFF NEGLECT OF INTERNS

It is often difficult for hospital staff physicians to trust the intern to do things. Often sufficient responsibility is not placed upon him. He should be in direct charge of his patients. The chief and his associates should make rounds with him in the rôle of consultants, and later in private they should counsel and instruct. The tendency is altogether too great in many hospitals to give orders to the intern in much the same way that instruction is given to nurse or orderly. This is poor technique. The intern must be approached in such a way that he will think for himself, reason from cause to effect, and thus enjoy a steady development. Because of an attitude of overlordship upon the part of the chief, many an intern becomes fearful of his patients and of his profession. At the same time he develops much the same attitude toward his teachers that is attributed to the little boy who was interrogated once as to what would be his greatest ambition when he grew up. Quoth the lad: "To scrub my mother's ears." Simply to regard an intern as a poodle to follow around after the chief, wagging his tail in admiration of his master's wisdom, is to defeat the entire purpose of a genuine internship.

ETHICS

The average medical student learns little of ethics in a practical way. What he does imbibe savors of the letter which killeth, rather than of the spirit which giveth life. In hospitals approved for interns too much attention cannot be paid to the character, the ideals, and the ethical sentiment and tendencies of the physicians on the staff. As the twig is bent, the tree will incline. Many a fifth-year student reaped a valueless harvest due to the germination of seeds sown in his soul by chiefs who during his hospital service days gave way in his presence to actions and remarks professionally immoral and unethical. Abuse of fellow practitioners, disparagement of their modes of treatment should never be indulged in the presence of an intern. These preceptors should be men who are scrupulous in their guardianship of their brother's good name. They must be men who will never for a moment countenance quackish or questionable methods of practice. In all their association with their fellows and patients they should partake of the spirit of Solomon of old, concerning whom it was written that "God gave him wisdom and understanding exceeding much, and largeness of heart, even as the sand that is on the seashore." Too frequently hospitals become hotbeds of gossip and criticism. In this respect they often call to my mind a remark of William Ewart Gladstone, England's great Prime Minister of the Victorian era. A Mr. Purcell had written a "Life of Cardinal Manning." The book abounded with criticisms of the venerable churchman. His motives, character, scholarship were picked to pieces in a most scathing manner. After making a thorough review of the work, Gladstone laid it aside with a heavy sigh, opining withal: "It leaves nothing for the Day of Judgment."

TEACHING THE ART OF MEDICINE

During the four years of his regular work in medical school the student learns much more of the science than of the art of medicine. This is to be expected and, in fact, cannot very well be avoided. Consequently the burden of initiating him into the art of his calling must and can be undertaken best at the hospital.

Too many young practitioners lose out because they manifest impatience and irritability with a crabbed and refractory patient. They need by precept and example to be instructed in the science of amboceptor, that mysterious substance which serves to connect the invading cell with the complement in such manner as to render it harmless to the body tissues. He must be taught how to cultivate that fine sort of positivity which nevertheless is leavened withal by a splendid power of attracting negative bodies to himself. Now and again there come to the medical college with which I am connected, students, feminine in gender, and of the genus spinster, who prior to turning their thoughts toward medicine have devoted their talent to training the child in the way he should go. I have noticed occasionally that some of these make a failure of the practice of medicine, and my observations have led me to the conclusion that a certain commanding attitude, undoubtedly acquired during the days when they presided over a group of youngsters in the schoolroom, was the underlying cause of disaster. In dealing with unappreciative patients a flank attack is far better than direct assault—an "enveloping movement," as the military tacticians would term it, more productive of good results than an artillery barrage. To speak in parables sometimes accomplishes far more than the argument of a wise logician.

Again, it is in the hospital that sympathy for the patient must be inculcated. A chief of high ideals can be of immeasurable service to an intern

in this respect. To train him in heart and demeanor to enter into the very life woes and agonies of those who have entrusted themselves to his keeping is to endow him with the gold of Ophir. All too often is the intern trained most exactingly in the minor technicalities of his trade—trained to "pay tithe of mint and anise and cummin, while omitting the weightier matters of the law, judgment, mercy, and faith: these ought he to have done, and not to have left the others undone."

SPIRITUAL AND MORAL CULTURE

Daniel Webster was once asked, "What to your mind constitutes the greatest proof of the Christian religion?" He answered in one touchingly brilliant sentence, "An old aunt of mine in the state of New Hampshire." In other words, ideals, morals, spirituality are things to be lived, and not merely abstract thoughts to be mentally assented to.

When I speak of morals and religion in medical training I am not referring to creed, churchfellowship, or dogma. I am endeavoring to impress upon the chiefs of staff and their assistants that the building of real character in the coming generation of doctors is a mighty task that is laid at their door. This is that priceless jewel which the Great Apostle so aptly defines as the "hidden man of the heart." Among all the adages to which the ancient Romans gave birth none is more pregnant with deepest meaning than "Nemo laeditur nisi a seipso"—no man is injured except by himself. The average youthful practitioner of medicine is quite apt to blame everybody else but himself when things go wrong. A capable chief can guard him well and guide him true in this important matter.

A physician's character is "what God sees him do in the dark." Hippocrates recognized that the profession of medicine is supported by two pillars—science and morals or religion. I greatly fear that at the present time we are paying too much attention to the former, and too little to the latter. We are exalting to the highest heavens, though perhaps none too high at that, the importance of the guinea-pig side of medicine, but we are doing but little to inculcate the basic, spiritual foundations of our vocation.

A TALE OF THE SEA

Our situation reminds me somewhat of a story I once heard an old, retired sea captain tell. This particular skipper regarded education as usually imparted in our universities as the plague of mankind. I was begging him one day to employ some of the young men from the college of which I was dean during the midsummer vacation. He was president of a large publishing concern. He stated tauntingly that no college student or young graduate was any good. He told how in days gone by he was wont to sail out of the port of Boston; how the students and young graduates from Harvard University would come and plead with him to give them jobs; and how he never considered them worth employing. But one time he did hire one. This particular fellow was, in many ways, very brilliant. My skipper friend took him on as a common seaman before the mast, at a salary of $10 a month. His mates thought he was a wonder. He became the darling of the forecastle. He could recite Shakespeare most dramatically, and at the rate of an entire play at a time. The lines of Ovid fell from his lips like the waters from the Falls of Minnehaha. The most abstract logarithms and problems were as nothing to him. He had only one trouble: he couldn't stay sober. Three-quarters of the time he was two sheets in the wind. One day when the vessel was rolling in a heavy sea, as he went staggering, dead-drunk, down the deck he ran afoul of the old master. In a towering rage my skipper friend began: "Jack, you miserable fellow, you ought to be ashamed of yourself. Here you are, versed in Greek and Latin, science, and the English classics; but you are filthy drunk most of the time; I have a good notion to put you in irons." "Yes, Captain, but you ought not to expect all the cardinal virtues for $10 a month."

Mr. Chairman, this little tale illustrates a vital principle. It is of little use to train young men in anatomy, physiology, medicine and surgery, in all the hidden arts of clinical microscopy, if we neglect to make them disciples of the cardinal virtues. Failing in this, we are simply putting weapons in their hands that will make them tenfold more the children of hell than they could possibly be without them. There is a mighty lesson to be drawn from the Great War: that it is dangerous to know too much of some things without the balancing power of other things. The cataclysm through which we recently passed clearly revealed that we knew too much about high explosives, poison gases, and deadly weapons, but altogether too little about the difference between a sacred treaty and a scrap of paper; or between frank, open and aboveboard dealing between nations and the subterranean mazes of secret diplomacy. In other words, the appalling catastrophe which overtook the world in 1914 was the end-product of those metabolic processes which involve too much scientific and too little moral training.

QUACKS AND CULTS

I have thought much about the quacks and cults and medical crooks with which the earth is reeking today. If these people are only ignorant enough they do not need to be, and are not crooked. Their success is in proportion to their ignorance. A cultist, if his ignorance is only dense enough, can honestly believe that adjusting the sphenoid bone will act as a magic cure for acute nephritis. His density acts as salvation against wilful dishonesty.

On the other hand, the better educated a medical man is the greater the necessity for the very finest grade of moral fiber and integrity. Unless that man has the interests of his patients, physically and financially, at heart he is going to subject them to a multiplicity of tests and procedures which in his heart of hearts he knows, as far as their particular case is concerned, are absolutely worthless. He is going to hold patients himself, and doctor them till they die, while piously talking about the providence of God, and the mys-

teries which we will not understand until we reach the other shore, when his innermost soul tells him that the poor man or woman might have been alive and well if he had only turned him over to a doctor of greater experience and skill. He is going to keep a lot of neurasthenic women wearing down their husband's fortunes and his office carpet, while he hands them out silly remedies for still more silly diseases instead of boldly and honestly telling them that what they need is to go home and make a pleasant day out of doing the family washing. He is going to operate on cases that he knows do not need the operation nearly so badly as he imagines his exchequer needs the dirty fee that he can filch from them. He is going to keep men and women on the operating table for two hours when someone else could get them off in one. The mere fact that he gets into the peritoneal cavity when he is trying to get into the bladder means nothing to him so long as in his crude way he gets some experience, and can keep the nurses and his assistants fooled as to his real rottenness. In other words, his limited knowledge of science has only served to make a consummate scoundrel out of a simple sinner.

My friends, it is things like this that may bring disgrace on our profession. It is true that men must learn, that they must make beginnings, and so it will ever be. But there are right and safe ways of learning and of making beginnings. Medical teachers must have enough backbone and moral fiber to weed out from their institutions of learning, even in the intern year, young men who do not have the proper moral or scientific attitude and foundation. The mere fact that a student is able to make his grades and pass his examinations is not a sufficient reason for handing him a diploma. There are greater things than per cents and examination marks. The mere fact that a student can pass a few examinations does not prove by any means that he is fitted to be a doctor and take the lives of men and women in his hands. This is such a superficial method of proving the proposition that it is positively puerile.

Today too many are entering the medical profession without really loving it. It may be that the mothers of some of these gave them consciences, but if they did, the boys were unable to raise them. "Too many are entering the medical profession without good working consciences, without the keen appreciation of the difference between right and wrong; too many are coming into an honored and honorable calling with low standards of trade and traffic in their souls. . . . The medical profession must be maintained as a place where righteousness reigns and no mean thing may live."

We need doctors today possessed of the deepest kind of simple sincerity. Men in whose care the frailest maid will be as safe as under the watchful eye of the fondest and purest mother. Physicians are in the very nature of their profession subjected to temptations far beyond those that come to men and women in any other calling in life. Life secrets and tragedies are bared to them in sacred confidences, and sympathy and comfort is sought at the altar of their hearts and hands. How necessary therefore that the moral atmosphere surrounding our own souls be pure as the gentle dawn.

In ancient days the art and science of medicine was entrusted to the priests. This was so when Moses was lawgiver in Israel and Tut-ankh-Amen was king in Egypt. Today nominally and outwardly the ministry and medicine are separate and distinct. But in a deeper, better sense it is not so, and so long as time shall last, and seasons come and go, men and women will come to their doctor with their sorrows and their woes. We must be equipped to bind up the broken-hearted, to assuage the grief of the downcast, and to give to all, beauty for ashes, the oil of joy for mourning, and the garment of praise for the spirit of heaviness. And if these be the lodestones of our lives, then in the beautiful language of Strudwick:

"Neither the apathy of friends, the cold neglect and deep injustice of legislation, nor pampered quackery and empiricism can stay its onward course. True medical science will, like the majestic oak, withstand the shock and storm of every opposition. It has been beautifully compared to a star, whose light, though now and then obscured by a passing cloud, will shine on forever and ever in the firmament of Heaven."

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THE ASPHYXIATED INFANT*

By Vernon L. Ward, M. D.
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Discussion *by Leslie A. Smith, M.D., Ogden, Utah; Eugene H. Smith, M.D., Ogden, Utah.*

ALL too often, following delivery, the infant that has been alive during the labor fails to breathe, in spite of measures for respiratory stimulation which we employ. Sometimes the heartbeat stops during the labor or it may fail to beat immediately or shortly after birth. We call the above condition asphyxia neonatorium and take the fatalistic attitude that nothing can be done to prevent it. The oftener we observe labor and birth the more impressed we are with the belief that asphyxia neonatorium is not a diagnosis, but only a symptom of some condition that causes delayed respiration or even death of the infant. The responsibility for the infant's death should be ours, if this causative condition is not guarded against.

The actual percentage of preventable infant deaths is given by some as 70 per cent. Study of reports made within the last few months indicate that the probable preventable deaths in the best institutions of this country average 20 per cent or less. Outside of such institutions where control of procedure is under varying responsibility, infant deaths will reach a higher average. It was brought out at the last meeting of the Obstetric Section of the American Medical Association that the intranatal and neonatal death rate had increased 10 per cent in the last few years.

What can the possible causes for these infant

* Read before the Weber County Medical Society, September 27, 1928.

deaths be, where no evident unavoidable condition accounts for them?

Certain definite possibilities arouse our suspicion. The first is that these asphyxias may be due to serious brain injuries. Opinions and investigations regarding brain injuries have gone through various stages of evolution. Several years ago all injuries were believed to be due to gross hemorrhages into the brain tissue. This belief was followed by the discovery that tears in the tentorium and falx were common lesions of intracranial injury. The credit for this discovery is due to Beneke, who, about 1910, proposed a technique for opening the fetal skull, through the adoption of which these tentorial and falx tears became and still are the commonly demonstrable lesions of intracranial injury. More recently, however, as a result of studies carried out by Schwartz of Germany and published in 1924, it was demonstrated that small hemorrhages and distinct areas of degeneration are common in the substance of the brain of the newborn. These areas of degeneration are found in the white substance of the hemispheres and in regions drained by the terminal and lateral ventricle veins, while the hemorrhages are within the areas of these veins and those of the great vein of Galen and the vena choroidea. Schwartz states that these lesions can be recognized macroscopically in 65 per cent of all infants up to the age of five months. After careful microscopic study of infants dying up to thirty days after birth, Schwartz believes that only a very few infants fail to show traces of such brain injuries. Similar areas in the caudate nucleus and pons have been found also. It is believed that hemorrhage and edema in these areas is a common cause of respiratory depression or paralysis. A case in particular, autopsied by Lundsden, illustrates that Lundsden had done research work on cats to locate exactly the automatic respiratory center. He found in this case a hemorrhage into the pons, which he believed had caused paralysis of the respiratory center. Corroborative evidence of the frequency of these hemorrhages is seen in the high incidence of retinal hemorrhages, the result of congestion and trauma during birth, reported by Jacobs; and Voss has shown that similar hemorrhages are frequent in the middle ear. It has been observed that "hypersensitive" "spastic" infants and infants called "spitters" and "vomiters," commonly follow hard labors, and it is suggested that these conditions are due to similar brain lesions.

TENTORIAL AND FALX TEARS

Tentorial and falx tears are caused by an increase in the longitudinal (vertical) diameter of the head with elevation of the vault. This can be definitely demonstrated in a properly prepared specimen by artificially molding the skull so that the vault is raised. This longitudinal diameter will be increased whenever there is deflexion of the head, for then the forces tending to mold the head will act on the transverse and anteroposterior diameters, and will result in an increase in the vertical diameter. This will also occur in the after-coming head except when it is fully flexed. Thus tentorial and falx tears will be least likely to occur when a perfect suboccipito-bregmatic diameter comes through the pelvis, because then the parietal bones will tend to overlap and what lengthening occurs will be in the less dangerous anteroposterior diameter. One can readily understand why these hemorrhages are common following "easy" or precipitate labors. In the roomy pelvis proper resistance is lacking; the head comes through in deflexion and what molding occurs is in such a direction as to raise the vault of the cranium. Forceps, unless applied on a fully flexed head, will favor the same condition, while resistance to the after-coming head will always raise the vault unless the head is fully flexed. Thus the importance in breech delivery of proper suprapubic pressure and the great danger to premature infants delivered by the breech is seen. Other causes of intracranial hemorrhages which are more or less in dispute and are not so easily proven are: sudden changes of pressure to which the fetal skull is subjected, suction action, and a hemorrhagic diathesis.

DISCUSSION OF VARIOUS DRUGS IN USE

Drugs may be a factor in causing the fetal deaths. *Morphin* is a widely used drug in labor, and while it is commonly used without regard to time and dosage, this cannot be indiscriminately done without danger. If morphin is given within three hours of the termination of labor, an occasional accident or death to the infant will result. The dose should not exceed one-sixth grain for a woman of 130 pounds. Morphin is a definite respiratory depressant, and it is a known fact that infants are commonly very susceptible to morphin. Further when morphin has been given during labor, the anesthetic at the end of the second stage must be used with the thought in mind of the depressing effect of morphin on the respiratory center.

Opinion regarding the now commonly used *Gwathmey rectal analgesia* is at wide variance. But where accurate check has been made of its routine use there is no doubt that it at least lengthens the labor. Hatcher of Cornell University, speaking of these drugs in general, says: "There is practically no scientific evidence that magnesium sulphate is synergistic with either morphin sulphate or ether as an anesthetic while there is ample evidence that it is synergistic with morphin and ether on the respiratory center and that numerous deaths have resulted from their combined use." He also says that: "A history of the use of morphin in childbirth would almost certainly show that, other things being equal, the danger to the child increases with the increase in the dose of morphin above a minimum, which is apparently one-sixth grain for the average-sized woman. Further, morphin in all doses except the smallest, as well as ether, tends to retard labor, and anything that retards labor may be of danger to the child."

Some cases have been reported from Germany where after the use of the oil-ether enema, ether was exhaled by the infants, and autopsy has shown severe irritation of the respiratory tract.

Magnesium sulphate alone in large doses produces a respiratory paralysis, and in small doses may do likewise if any idiosyncrasy exists. In spite of these objections "Gwathmey" is a valuable analgesic, but should be used in selected cases. Other drugs are being used to replace the morphin in this combination.

This paper is not dealing with anesthesias in labor, but it is evident that physicians routinely trying to relieve the pain of childbirth will at times do it at the risk of the child. However, we have knowledge of ways to relieve pain and suffering during labor, and we are duty bound to use this knowledge to lessen the shock, exhaustion and fear, incident to labor. These factors together with others are advantages that the present-day woman should have at her disposal and which, if used carefully, far outweigh the disadvantages of an occasional risk to the infant. In fact this risk may be practically eliminated by selecting the method for the individual case, and not using one method blindly or routinely. Obstetrical anesthesia is an art by itself, and requires just that to get the most out of it.

Pituitrin as a cause of fetal death and asphyxia in labor is condemned by practically all obstetricians before the third stage of labor, yet it is in almost routine use by the profession in general. It has long been demonstrated that pituitrin increases the length of the uterine contraction, with the production of a varying degree of uterine ischemia. One needs notice only that when the uterus normally contracts an intranatal asphyxiation is initiated, as evidenced by a slowing of the fetal heart rate, to know that when this interference is prolonged and intensified by the injection of pituitrin actual asphyxia may result. I say interference because it is probably primarily a placental circulatory asphyxia, and secondarily a cerebral congestion or anemia from pressure. Kraus in 1927 showed that on pregnant rabbits pituitrin after the eighteenth day caused the death of the fetus and that hemorrhages into the placenta were present. Thomas of Yale, discussing ischemia of the parturient uterus, remarks on the frequency of this condition following the use of both ergot and pituitrin when given in labor. It has been demonstrated at De Lee's Clinic that there is a typical "pituitrin" lesion shown at autopsy which is characterized by an intense congestion of the pia mater. Ehrenfest believes (and he quoted several others) that the mechanical trauma of the fetal head incident to pituitrin causes many fatal intracranial hemorrhages during birth.

ASPHYXIA

Asphyxia *per se* may be a primary cause of intranatal death when caused by cord obstruction, pituitrin or spontaneous tetanic contractions of the uterus, by producing a placental circulatory obstruction. Theoretically asphyxia is a contributory cause of hemorrhage because of the intranatal cerebral congestion it produces. But there is another cause of respiratory center depression with asphyxia which is due to direct cerebral pressure. In the presence of such pressure the blood supply to the center is greatly diminished and the normal chemical stimulation of the blood carbon dioxid is wanting. This, Henderson believes, is a very definite and frequent cause of asphyxia.

Prolonged delay at the outlet from rigid perineum or vulvar ring, or from manual retardation of the head, may cause death from traumatic brain pressure or by prolonging an existing cord pressure. These factors must be considered when the woman is under the influence of anesthesia or drugs at the end of the second stage and the normal physiological expulsive forces are interfered with.

Contributing to the death of these infants is the manner of resuscitation. Holding the infant upside down will increase cerebral congestion and may cause a hemorrhage from an already injured vessel. Swinging the infant, especially in the Schultz method, will more easily produce the same effect and may cause a hemorrhage if the infant's blood coagulation time is long. The birth has already subjected the infant to shock through sudden changes of pressure, atmospheric conditions, and temperature. To spank or pinch or immerse it in an extremely cold bath only tends to increase the existing shock. Yandall Henderson of Yale has recently called these therapeutic assaults practices carried over from the Dark Ages. The stimulation of the respiratory center is a chemical phenomenon depending on the amount of carbon dioxid in the blood. The child is asphyxiated, contrary to the old idea, because the blood carbon dioxid is decreased. Oxygen is not a respiratory stimulant, but is necessary to the production of carbon dioxid. According to many anesthetists, pure oxygen is a paralyzing agent to the center. Asphyxia lividae presents a good prognosis because carbon dioxid is yet present in the blood. The child is cyanotic. But when asphyxia pallidae is present both oxygen and carbon dioxid are greatly decreased, and although the heart may be beating, carbon dioxid cannot be formed because there is no oxygen to produce it. The proper treatment to combat this is to supply the physiological stimulant, carbon dioxid, preferably a mixture of carbon dioxid and oxygen—5 per cent and 95 per cent, respectively, under very gentle pressure (6 mm. Hg.). Such an apparatus simple in construction should be in the delivery room at all times. In emergency, mouth-to-mouth insufflation supplies the needed carbon dioxid to the infant's blood. The pressure is difficult to regulate, and it has the disadvantage of being liable to injure the delicate lining structure of the lung and cause shock, edema, or actual hemorrhage. When utilized this danger must be kept in mind. It is far inferior to an apparatus which will accurately measure pressure, and regulate the proportion of carbon dioxid and oxygen, to give proper stimulation to the respiratory center

Prematurity presents factors favoring intracranial injury. It has been shown that hard, closed skulls protect the fetal brain against birth injury, and that the soft, malleable skull of the premature infant favors molding with tension and tearing of the membranes Further, the undeveloped blood vessels of the premature infant are abnormally friable and subject to rupture. Thus

premature labor must be considered a serious accident of pregnancy. Version and delivery by the breech is especially to be avoided in prematurity. Hurry in delivery of the after-coming head is an error. Pulling on the body or neck increases the already cerebral congestion and tension on the falx and tentorium. Pressure from above must be gentle and for the purpose: first, of increasing and maintaining flexion, and, secondly, to make pressure. For these purposes the hand should correspond to the diameter of the head. Blind, forceful pressure may cause collapse from herniation of the medulla through the foramen magnum. Suprapubic pressure is a job for a specially trained intern or assistant.

Gentleness in handling, warmth, and a proper supply of carbon dioxid and oxygen are the basic requirements in the treatment of asphyxia in the newborn. And though use of respiratory stimulants is a distinct aid we all repeatedly use methods of treatment without questioning the merit of the procedures. We easily do things contrary to scientific facts we have learned in the fundamental sciences of physiology and pathology. The frequency of asphyxia in the newborn, being many times greater than from all other causes put together, makes the subject of real importance. Hospitals should equip delivery rooms with every scientific means to control it.

503 First National Bank Building.

DISCUSSION

Leslie A. Smith, M. D. (Ogden, Utah).—It was my privilege while working in the department of pathology at the Washington University Medical School to dissect a number of the heads of stillborn infants and of a few babies that had died shortly after birth.

At this time attention was being directed toward the matter of intracranial hemorrhage. All of these heads were opened by the Beneke method, which consisted in clipping away most of the parietal bones on either side, and the occipital bone from over the cerebellum. The brain substance was then scooped out, leaving the falx cerebri and tentorium cerebelli intact, supported by enough of the skull to hold them in position.

Many of these specimens contained tears that showed an extensive hemorrhage; others with multiple small tears showed none.

The hemorrhage was most profuse where the margins of the falx or of the tentorium were torn, as here the large sinus veins are found.

Often just the superior or the inferior lamella of the tentorium was torn, and in these, too, there would be much hemorrhage. Hemorrhage sometimes was seen between the lamella of the falx, causing it to become thickened, but with no bleeding into the intracranial cavity.

The hemorrhage, where present, was usually quite profuse and often completely covered both the hemispheres of the brain.

We paid little or no attention to the brain substance itself, as it was usually macerated in removing it. We therefore did not find cases of hemorrhage into the brain substance that are now being found.

In the dissected mounted head, one can see plainly the mechanism by which these tears are produced. An elevation of the vault or increase in the up and down or longitudinal diameter puts the falx and the tentorium margins on a tension that, carried to extreme, easily results in a tear.

It was not uncommon in the cases of those infants who had lived a short while, to find, in addition to an intracranial hemorrhage, that the lungs had been forcibly inflated (mouth insufflation), and showed extensive interstitial emphysema, which condition alone could have caused death had the intracranial hemorrhage not been enough.

Eugene H. Smith, M. D. (Ogden, Utah).—Doctor Ward has adequately covered a most timely and important subject. Scientific medicine cannot rest supine with these appalling figures of infant mortality confronting it. There are many angles to this subject. I will mention but one, which might be termed the pathological physiology of asphyxia. The newborn infant is practically a decerebrate animal. It lives as long as circulation and respiration continue. The extrinsic nerves of the heart, aside from the vagus, arise from the upper thoracic roots, pretty well out of the danger zone. Hence it is common to find that the heart continues to beat long after respiration ceases. The respiratory center is located in the lower portion of the medulla. Here it also is protected from injury as long as the structures above it maintain their integrity and its blood supply is adequate. The most important of these structures is the tentorial cerebelli, and Doctor Ward has indicated the great frequency with which this protecting bulwark is injured during birth. Injury to the tentorium may result in one or both of two serious conditions: hemorrhage from torn vessels into the posterior fossa, and pressure with herniation of the medulla into the foramen magnum. Either of these may lead to serious or fatal asphyxia.

From the standpoint of treatment, both of these conditions contraindicate the usual vigorous efforts of resuscitation. If asphyxia is due to pressure from hemorrhage alone, some relief may be accomplished by lumbar or cisterna puncture. If the function of the respiratory center is depressed from anemia, lowering of the head, the application of a firm abdominal binder, and pressure upon the carotids with the object of shunting the blood through the vertebrals, which mainly supply the hind brain, are rational procedures.

ANESTHESIA FOR CRIPPLED CHILDREN *

By Emma Buckley, M. D.
San Francisco

THE Shriners' Hospital for Crippled Children was opened in 1923 with fifty bed patients, and with a long waiting list. With such a large waiting list it happens that a few, from having long waited their turn or from readmittance for a second operation, attain the age of fifteen, sixteen, or even seventeen years, before the final operation is done. The great majority of patients were between two and ten years.

STATISTICS

In the nearly five years of the hospital's work, 550 new patients and 130 former patients were admitted, making nearly a thirteen-time turnover of patients, and a daily count of fifty-nine or sixty patients, each on the average remaining in the institution from three to six months. The outpatient clinic each Thursday gives examinations, x-ray, manipulations, dressings, casts, braces, and other treatment to from thirty to sixty patients.

CHOICE OF ANESTHETIC

For operations on these children, nitrous oxid and oxygen is always used for induction, and used throughout for delicate or weakened children or where short anesthesia only is needed, as in osteoclasis, overcoming ankylosis, draining abscesses, removal or adjustment of extension pins. For the ordinary well and strong child, ether alone, or ether-oxygen is the anesthetic employed. Local

* Read before the Anesthesiology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

anesthesia is seldom employed, except for slight operations such as on the eye or teeth.

With no admittance restrictions as to race, religion, church or social position, and having only the qualifications of indigence and need, one can see that loving care and psychical understanding are factors to be reckoned with and emphasized in the work of physical rehabilitation of these children. The great majority of these patients are in ordinary health when they come to operation, having been in isolation for two weeks or more, and having had twenty-four hours external preparation. From thirty to forty minutes before operation is begun, a small dose of atropin, grains 1/300 to 1/200, is given by mouth to children under five years, and morphin, grains 1/16 to 1/12, with atropin, grains 1/300 to 1/200, by hypodermic for those older. This makes possible a very light ether anesthesia. In closed cases where manipulation and frequent change of position is necessary, ether is most efficient. It is seldom that only one operation is done during one anesthetic. More often there are two and sometimes three or four.

Many operations are necessarily long and tedious, and after operation comes the application of the cast and its molding: but the patient can be held lightly with ether, so that at the end of one and one-half or two hours he awakes in his warm bed, usually without nausea sequence. The long sleep following the first awakening after ether if prolonged, even though light, is very beneficial especially to the child encumbered with a heavy cast.

Breathing exercises are given all children by the physiotherapist. This improves chest capacity, and its good result is noticed in Hibbs's and Albee's operations where the prone position lessens chest expansion, even though rolled towels are placed under armpits to relieve pressure on the chest.

The long serious operations, such as open hip reductions, lengthening of limbs, Hibbs's operations, Albee's operations, are the ones in which shock is feared and are also those which are usually followed by postoperative illness. We give in all cases of this kind a hyperdermoclysis of salt solution during operation to make up for waste of blood or loss of strength; also extra warming of bed by means of electric heater under bed, comfortable position, darkened room, and quiet. Of course the surgeons work as quickly as possible. In all cases the bed is brought to the operating room, but in the more severe cases even greater precaution is taken for heat and comfort.

For all cases—long, short, severe or mild—great care is taken to prevent air of low temperature from striking the body. When the relaxed skin of the patient is struck by a cooler air the functional processes are reversed; the poisons instead of being excreted are lodged or turned back into veins and lymphatics. All excretions are stopped for the time, giving rise to weariness of body, dullness of mind, headache and nausea. These symptoms are all intensified in deep ether anesthesia, ether getting the blame usually.

With a nervous or hysterical patient there is apt to be nausea and lassitude following any or no anesthetic. These Shriners' hospital children patients are the same as any others, and hysterical and fearful patients are found in the same proportions. By waiting till the subconscious mind is fully under control before the operation is begun, one may sometimes get through without postoperative nausea. Any odor is dreaded. The only salvation is rapid, gentle surgery that mind and body may readjust as quickly as possible.

In this last respect there has lately been a great change for the better, especially in gentleness of touch. Surgeons know that better after-results are obtained if patients are not sodden with anesthetic.

Now that the specialty of anesthesia is recognized, the anesthetist has it in his power more than ever before to do his work in a more independent manner, and to safeguard his patient in all respects.

At the Shriners' hospital the majority of patients are conscious ten minutes after cessation of anesthetic. In much orthopedic work the anesthetic must be continued for the making and molding of the cast. Where no cast is applied the eyes have opened and child gone back to sleep again, when his bed is ready to take back to the ward.

PREOPERATIVE CARE

The going to surgery is prepared for and looked forward to as a great excursion. Chief nurses are always at hand with deep interest in this particular operation to encourage, console, hold hands and prophesy a fine outcome and a speedy return to homefolks. A few children grow to like hospital life, especially at Christmas time, when stories are rife of wonderful entertainments and presents.

On entering the hospital, in addition to the usual history taking and examination, the family and environment are considered. X-rays, photographs and movies are taken. The photographs and x-rays are for surgeons to study. The movies are for both surgeons and Shriners. For at discharge another series of photographs and movies is taken to show the results obtained by the stay in the hospital.

There is always improvement, and often most remarkable changes for the better, noticeable even to the casual observer. Many times only surgeons and nurses can fully appreciate what has been accomplished.

But many a child has learned to walk; many a one coming with crutches has returned home walking securely without assistance. Many a knock-kneed or bow-legged child with club feet has had his limbs straightened and his feet turned so that he could put them firmly on the ground and look the world in the face.

Many a child has learned to read or been helped toward development of some special talent he pos-

sessed. Many a little girl has taken home with her the products of hands and needle accumulated while waiting for feet to be straightened.

Diphtheria, measles and sore throat epidemics have occurred, though the disease of "isolation" is to them the commonest and one most in vogue.

In a series of 1283 anesthetics—230 purely gas and oxygen, sixty-five ether-oxygen, and the remainder ether, about one-fourth of which were helped out with gas and oxygen, or oxygen, as seemed best without special record being made of it.

There have been four postoperative deaths—two from shock and two from embolus. The other two hospital deaths were from tuberculous meningitis.

There has been very little postoperative nausea or illness, due, I believe, to operative and postoperative care.

The average number of anesthetics per child is two, but a few have had only one; one patient had eighteen; another thirteen; two others nine each, and many have had five before final discharge.

2111 Hyde Street.

THE LURE OF MEDICAL HISTORY

WILLIAM HARVEY*

PART II

De Motu Cordis

By FRANK H. RODIN, M. D.
San Francisco

THE TEACHING OF THE ACTION OF THE HEART BEFORE HARVEY

FOR fourteen hundred years Galen's teaching of the action of the heart was the accepted doctrine. Galen (131-201) demonstrated that the arteries contain blood. According to him the liver was the center of the vascular system. The blood ebbed and flowed in both arteries and veins. There was no connection between the arteries and the veins, but there were invisible pores in the septum of the heart through which the blood was supposed to pass from the right to the left side. The first observer to seriously upset Galen's theory was Vesalius (1514-1564), who stated that he could find no pores in the septum. Fabricius ab Aquapendente, Harvey's teacher, in his *Venarum Ostiolis* (1603), claimed that the purpose of the valves of the veins was to prevent the downward flow of the blood to the hands and the feet. It is possible that this book greatly influenced Harvey in his work on the vascular system.

De Motu Cordis

In the year 1628 there was published at Frankfurt-on-the-Main, then a center of learning, a small quarto volume of less than one hundred pages and published by William Fitzer. It was dedicated to Charles I, and written in Latin. The title page read: "An Anatomical Treatise on the

EXERCITATIO
ANATOMICA DE
MOTV CORDIS ET SAN-
GVINIS IN ANIMALI-
BVS,
GVILIELMI HARVEI ANGLI,
Medici Regii. & Professoris Anatomiæ in Col-
legio Medicorum Londinensi
FRANCOFVRTI,
Sumptibus GVILIELMI FITZERI.
ANNO M. DC. XXVIII.

Fig. 2.—Title page of the first edition of Harvey's "De Motu Cordis," published at Frankfurt-on-the-Main, 1628.

Movement of the Heart and Blood in Animals, by William Harvey, the Englishman, Physician to the King and Professor of Anatomy in the London College of Physicians." Harvey in his preface stated that the theories that he is presenting had been the work of more than nine years. ". . . I do not profess to learn and teach Anatomy from axioms of Philosophers, but from Dissections and from the fabrick of Nature." Here we have the keynote of his teaching, the beginning of the scientific and experimental attitude in medicine. He stated that the arteries and veins contain nothing but blood, and not only that, but the same kind of blood is contained in both kinds of vessels. He made the important observation that the arteries dilate. "But I believe I can easily demonstrate, and have heretofore demonstrated, that the arteries are distended, because they are fill'd like Satchells or baggs, not because they are blown up like bladders." Observing the motions of the heart he was as greatly perplexed as many an observer today, when he said: "I straightwayes found it a thing hard to be attained, and full of difficulty, so with Fracastorius I did almost believe, that the motion of the Heart was known to God alone: For neither could I rightly distinguish, which way Diastole and Systole came to be, nor when nor where the dilatation and constriction had its existence." Harvey then proceeded to state his explanation of the action of the heart, which is fundamentally what is accepted today.

He summarized his views in the chapter on the conclusion of the demonstration of the circu-

* This is the second of two papers on William Harvey. The first paper was printed in this journal in last month's issue.

lation of the blood: "Now then in the last place we may bring our opinion, concerning the circulation of the blood, and propound it to all men.

"Seeing it is confirm'd by reasons and ocular experiments, that the blood does pass through the lungs and heart by the pulse of the ventricles, and is driven in and sent into the whole body, and does creep into the veins and porosities of the flesh, and through them returns from the little veins into the greater, from the circumference to the centre, from whence it comes at last into the *vena cava*, and into the ear of the heart in so great abundance, with so great flux and reflux, from hence through the arteries thither, from thence through the veins hither back again, so that it cannot be furnished by those things which we do take in, and in a far greater abundance than is competent for nourishment: It must be of necessity concluded that the blood is driven into a round by a circular motion in creatures, and that it moves perpetually; and hence does arise the action and function of the heart, which by pulsation it performs; and lastly, that the motion and pulsation of the heart is the only cause."

Harvey's theory lacked complete confirmation. He did not show how the blood was transmitted from the arteries to the veins nor was it possible for him actually to have demonstrated this. The microscope was not yet invented. It remained for Malpighi, four years after Harvey's death, aided by the microscope, to see the blood in the lung of a frog in minute arteries passing into minute veins. It remained for the famous Dutch microscopist, Antone van Leeuwenhoek in 1688, to confirm this observation and confirm Harvey's doctrine.

Harvey's work was not translated into English till 1653. This edition was reprinted in 1673, but was never published again till the Nonesuch Press issued an edition based on the first English text of 1653, on the occasion of the tercentenary celebration.[1]

Harvey's work is a model of lucidity, cogent argument, and scholarly restraint. The work is that of a man who had taken his time, had proven his point, and when he spoke, he spoke with the air of finality. It is the work of a man who was sure of his logic, giving the result of painstaking observation. The book is richly illustrated by quotations from ancient and contemporary writers. Because of such principles Harvey proved his points so far as it was possible in his day to prove them.

HARVEY'S LATER YEARS

Harvey in the meantime became closely connected with the court and was a heavy contributor to the Royalist cause. He was appointed physician in ordinary to Charles I in 1639. He followed the king in war and during the civil wars, in 1642, went with the king to Nottingham and assisted the wounded at the battle of Edgehill. In the same year he settled at Oxford, where he was made a Doctor of Physic. Four years later he returned to London and retired to private life. In the last years of his life he suffered greatly from gout. In 1652 Harvey, who was at that time considered the greatest anatomist and physiologist in the world, was elected president of the Royal College of Physicians. This he refused to accept because he felt old and was in feeble health. He died five years later at the age of eighty years. The cause of his death was probably hemorrhage in the brain. He was buried at Hempstead in Essex.

His eulogy has been best expressed by Sir Charles Sherrington, who spoke at Harvey's tercentenary celebration and who concluded with the following: "The work of Harvey, the spirit of it no less than the import of it, provides his eulogy and makes superfluous all other. His great discovery, aside from its intellectual worth, secured an item of knowledge than which no other single item has so served to grow, as from a seed, medicine as we now know it. And it was the reassertion, the rebirth, of the method of experiment which, wedded to observation, had created the medicine — and the surgery — of the civilized world today. To engender medicine anew is to engender a whole world of correlated knowledge; and an attendant world of beneficence no less. The circulation of the blood, the meaning of the heart, the light of a victorious method! May we not affirm that modern medicine does in fact start there? Harvey, founder of modern medicine! He would himself have felt no term can carry richer or lovelier praise from a grateful world."

490 Post Street.

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CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

THERMOGENESIS BY RADIO FREQUENCY CURRENTS

By ALBERT SOILAND, M. D.
AND
A. H. WARNER, PH. D.
Los Angeles

THAT heat will destroy cancer cells, has been known for many years. Heat, such as that supplied by the actual cautery or by surgical diathermy, is of great value in localized and in more or less limited areas of cancer invasion, but unfortunately we have not, up to the present time, been able to deliver a general killing heat to a massive carcinomatous lesion without the greatest danger to the life of the host.

All heat so far employed, whether for the alleviation of pain or for the destruction of tissues, depends upon heat distribution through external application or through application to the cavities of the body. The only exception to this method of heat production is the fever heat such as is produced by inoculation of various proteins

and toxins. A new method of generating heat by means of radio frequency currents is here presented.

EFFECTS OF HEAT ON TUMOR AND CANCER CELLS

In January of the present year Dr. O. N. Meland of our group became interested in the experimentations reported by Mendel and Walinski,[1] and their account of the effects of heat and hot packs on tumor and cancer cells. Later it was learned that J. W. Schereschewsky,[2 3] surgeon in the United States Public Health Service, had described apparatus and methods employed in determining the effects of high frequency electric fields on mice and upon sarcomata in mice. A news letter of March 2, 1928, in the *General Electric Review,* mentioned the heating effects of similar frequencies on the operating personnel of a very powerful generating set. Doctor Meland drew our attention to the new problems involved in this investigation, and a consultation between Doctors Costolow, Meland, A. H. Warner, Ph. D., of the California Institute of Technology and the University of California at Los Angeles, Mr. Gilbert Wright, an experienced amateur radio operator, and myself, was held and the subject thoroughly discussed. We determined upon the construction of an apparatus designed to deliver heat by the use of radio frequency currents in an attempt to influence malignant growths. Such an instrument was constructed and is described as follows by Mr. Wright and Doctor Warner.

DESCRIPTION OF THE APPARATUS

"The apparatus is a vacuum tube oscillator producing an alternating current having a frequency which may be varied from thirty to one hundred million cycles per second. By electromagnetic induction a similar current is produced in a secondary circuit which has no metallic connection with the vacuum tube circuit. In this secondary circuit is a condenser, consisting of two insulated rectangles of copper foil which are used as applicators to the patient's body, a meter for measuring the current, and a small variable condenser for adjusting the value of the current.

"An electrical condenser consists of two metallic or conducting plates separated by a nonconductor or insulator. When an electrical pressure is applied to the conducting plates of the condenser, the positive and negative charges of the insulator move slightly, but are held as if by springs, and consequently come to rest, ready to spring back if the pressure is released. This is the situation throughout the entire insulator. Some of the energy involved appears as heat when the pressure is applied or released, and is known as the 'dielectric loss.' If the insulator is quite poor or 'leaky,' some of the electrons or ions may move through it, and 'Joule heat' also appears. Heat is consequently generated throughout the tissues included between the two applicators used, although no direct metallic contact is made to the body. The amount of heat can be regulated by adjusting the current in the secondary circuit and by using applicators of different sizes."

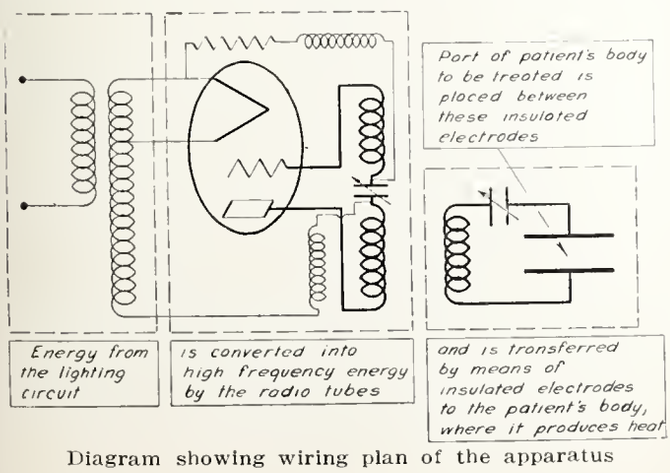
Part of patient's body to be treated is placed between these insulated electrodes
Energy from the lighting circuit
is converted into high frequency energy by the radio tubes
and is transferred by means of insulated electrodes to the patient's body, where it produces heat

Diagram showing wiring plan of the apparatus

OBSERVATIONS IN USING THE APPARATUS

Our clinic at that time had under observation and treatment a young man with a metastatic melanotic sarcoma involving the scalp and neck. This was a condition for which an extensive operation and massive radiation had resulted in failure. Treatment with radio frequency waves directed to the diseased tissues of the patient was commenced, and the immediate effect was relief from pain and tension; there was also a profuse diaphoresis followed by periods of restful sleep. The treatment was given on intermittent days and continued over a period of three weeks, during which time the clinical effects were closely watched. The necrotic areas on the surface sloughed off; otherwise no other pertinent change was noted. The patient died subsequently from pulmonary edema due to internal metastases.

About this time a patient in the hospital suffering from an acute arthritis, who had been only partially relieved by the routine treatment for such conditions, willingly submitted to the "radio frequency test." The joints of the hands were swollen and tender, and motion was limited in both upper extremities. He had been in the hospital for thirty days and there appeared no immediate prospect of a recovery. He was given daily applications of the radio frequency current, each treatment being followed by a free diaphoresis, relief from pain, and sound sleep. The patient left the hospital after two weeks and returned to work.

We are making careful clinical observations with this apparatus to determine whether it is a new therapeutic agent which will merit further research, with the hope that it may have a future bearing on the cancer problem. Routine examinations of urine and blood, taken before and after treatment, fail to show any significant changes. Temperature readings show a general rise of .2 to 1.2 degrees Fahrenheit. A feeling of languor comes over the patient and sleep is induced even while the patient is under treatment. Judging from our observations, we believe that something more than actual heat accompanies the induction of these frequencies into the human body. Just what these phenomena are we are not yet in a position to say. It would seem from reasoning along physical lines that it is impossible to expect anything but heat from the wave lengths employed, but a biologic reaction is apparently engendered in the tissues. This is either a mechanical or chemical problem which demands further investi-

gation and study. If it can be shown that a certain lesion will respond to or become profoundly affected by, a vibratory electrical impulse of a characteristic frequency, then it would not be beyond the power of imagination to feel that a new line of investigation covering this theory may well be conducted.

The present experimental equipment seems unable to cope successfully with human cancer. Nor can the methods heretofore employed in animal experiments be converted to clinical attainments on human beings. Nevertheless, through this or improved apparatus it may be possible to discover human reactions and human cell tolerance to radio frequency currents of this type by a carefully conducted series of clinical tests. This is our immediate problem.

CONCLUSIONS

We have observed that pain of various intensities is quickly modified and frequently relieved, and that this relief is in certain instances more pronounced than with any other mechanical or electrical device with which we are familiar.

We have observed in patients with arthritis deformans, and with acute arthritis, that joint pains are lessened, and that motility in the affected joints is gradually improved.

We have observed in some cancer cases that the pain which would not yield to the hot-water bottle or to dry heat, would be relieved more readily by the radio frequency currents.

1407 South Hope Street.

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TUBERCULOUS APPENDIX

PERFORATION BY GRASS STALK

CASE REPORT

By John Martin Askey, M. D.
Los Angeles

G. K., a Greek, male, age twenty-seven, had been in good health until May, 1928. Following the usual evening meal he had a sudden pain in his lower right abdominal quadrant; was slightly nauseated but did not vomit. The pain was not severe enough for him to call a doctor, but persisted until three days later when he saw his doctor, who diagnosed it as appendicitis. The pain continued with aggravation by food. He curtailed his food so much his weight dropped sixteen pounds in two months. He was constantly conscious of a "heavy" aching feeling and noticed soreness on pressure over the lower right quadrant.

On July 24, when first seen by Dr. Thomas C. Myers, the salient finding was a firm, somewhat nodular mass about two inches long and an inch wide, slightly tender, an inch above McBurney's point. The mass could be rolled easily between the fingers, was hard, and gave the impression of a conglomerate mass of lymph nodes. There were no glands in the neck, axilla, or groin. There were no positive findings in the heart or lungs. The temperature was 99, pulse 84. The blood showed 9000 white cells with a normal differential count. Urinalysis was normal.

X-ray plates revealed a shadow of calcification to the right of the fourth lumbar vertebrae not apparently that of the mass. A gastro-intestinal x-ray study did not visualize the appendix, but the mass seemed outside the intestinal tract. Cystoscopy failed to show any abnormality of the bladder mucosa. An opaque catheter was inserted in the right ureter and a pyelogram taken, which showed a normal kidney pelvis and the calcification shadow outside the ureter.

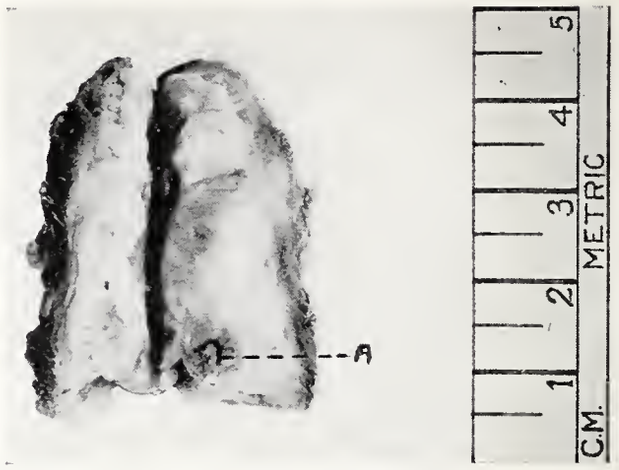

Fig. 1.—Section through appendix. A—Grass stalk in perforation.

Under ether anesthesia a laparotomy was done by Doctor Myers. The tentative diagnosis was appendiceal abscess. An adherent mass, buried beneath the cecum, with great difficulty was separated and identified as a markedly swollen appendix with a tiny point of perforation near the base through which protruded a grass stalk one and one-half centimeters long. The swelling formed a globose mass at the distal end of the appendix narrowing down to a normal width at the base. The cecum was uninvolved. The intestinal serosa was smooth, there were no other pathologic findings of the abdominal organs. The calcified area seen on the plates was not identified. The postoperative course was uneventful and the patient left the hospital in two weeks.

Dr. E. M. Hall's pathologic report was as follows: "The specimen consists of a greatly thickened appendix, 5 centimeters long by 2 to 2½ centimeters thick. The lumen is completely obliterated by granulation and lymphoid tissue. Near the base there is a ragged perforation 3 millimeters in diameter in which a grass stem 1½ centimeter long is found. Sections show marked fibrous thickening of the subserosa with many areas of dense round-cell infiltration in this layer and the muscularis. The lumen is filled up with lymphoid tissues in which a number of cellular tubercles occur composed of epitheloid cells with an occasional large giant cell of the Langhans type. Diagnosis: tuberculosis; chronic appendix; foreign body in appendix (grass stalk)."

A section of the foreign body showed the polygonal cell structure of a vegetable fiber.

COMMENT

Tuberculosis of the appendix associated with no demonstrable pulmonary involvement is a rare condition. A coincident perforation by a foreign body is extremely rare. Primary appendiceal tuberculosis of the hyperplastic type supposedly does not occur, but this case showed no other tuberculous evidence in the abdomen, and the normal postoperative course after ether anesthesia argues against any latent pulmonary focus. The x-ray shadow possibly was due to a calcified lymph node, but no abdominal adenopathy was found. Foreign bodies in the appendix usually are of metallic nature. Pins, needles, screws, buckshot, etc., are the commonest offenders. The priority of the tuberculous lesion to the lodgment of the grass stalk is most probable; that the perforation gave rise to an exacerbation of symptoms, however, is not illogical.

1501 South Figueroa Street.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

EPILEPSY

Thomas J. Orbison, Los Angeles.—"There is no such disease as epilepsy." This assertion was made by a physician on the witness stand in a Los Angeles court at a recent medico-legal trial, and it was received with incredulous surprise by the court and the lawyers as well as by the spectators and jury.

In his address to the members of the state medical society at Sacramento Dr. S. A. K. Wilson of England voiced the same thought, putting it in slightly altered form. Ten years ago anyone making any such dogmatic assertion would have been looked upon as slightly "off."

Today one may state, with the authority of most neuropsychiatrists whose work includes analyses of cases of epilepsy in large numbers, that epilepsy is not a disease. This is more nearly true than to say "there is no such disease as epilepsy."

To say "there is no such thing as epilepsy" is much too radical an elimination of a long known and recognized disease complex, characterized by convulsive attacks with unconsciousness or equivalents. The attempt is being made more and more to get rid of the emphasis that has always been given to the convulsions of epileptic patients. Convulsions *per se* are not the disease called epilepsy, but are a symptom of that disease complex. One may therefore say that the convulsive attacks, which have been diagnosed epilepsy, are in reality—and certainly to a much greater extent is this being determined as time goes on—the symptoms of irritation along the motor steps of the central nervous system. Thus it appears that what we call epilepsy is really not a disease, but a symptom complex in which many specific disease factors must be considered as etiological components.

One may set up typical epileptic attacks by irritating motor paths by an electric current. They appear in the Jacksonian type as the result of irritation by a foreign body—*e. g.,* tumor. They are known to result in the arteriosclerotic patient as the result of aneurysm or because of petechial hemorrhages. In paresis they come on as the result of toxic factors.

As a result of this attitude of finding the cause rather than of treating the effect (convulsion) many cases of "epilepsy" are cured following: (1) The removal of toxic foci, *e. g.,* dead teeth associated with apical abscess; toxic tonsils. (2) Exhibition of nonprotein shock in suitable cases, *e. g.,* as in the modern treatment of paresis. I would here cite two cases of "epilepsy" in children in whom congenital syphilis was demonstrated, both of whom ceased to have convulsions following nonprotein shock secured intravenously. (3) Removing local irritants from motor areas in the brain, *e. g.,* as in certain cases of "Jacksonian epilepsy." (4) Elimination of irritants from the body fluids by cleaning up the gastro-intestinal areas, *e. g.,* by corrective diet, etc. These are a few of the newer approaches in cases of "epilepsy."

Five years ago, with some temerity and a good deal of hesitation, I voiced my feeling upon this subject before the Neuropsychiatry Section of the American Medical Association. It was to the effect that in order to obtain a truer idea of the underlying factors in epilepsy there must be given us by research workers data having to do with the normal and abnormal sensitization of brain parenchyma; with biochemical factors within the body that affect the same; measures for desensitization or resensitization of pathological parenchyma, so that a normal sensitization may be induced. All these are most important, and as yet, though the idea has been widely voiced, we have not enough data to prove or disprove the theses stated. But, on the other hand, there is an accumulating mass of evidence that should soon be correlated so that it will give us more confidence in exhibiting certain definite specific therapeutic measures, rather than making a diagnosis of epilepsy and prescribing bromids or the like, as was too much the order of procedure some years ago. Though the name "epilepsy" may be unsatisfactory to the purist, nevertheless it probably will remain to designate those cases which are now so classed.

* * *

Lovell Langstroth, San Francisco.—In the past year three patients with epilepsy have been referred to me for medical treatment because careful neurological examination revealed no signs of structural disease. I treated them according to the plan of Doctor Walker of the Mayo Clinic by a so-called ketogenic diet. Its caloric value was 25 per cent higher than the basal requirements, its fat to carbohydrate ratio high enough to keep considerable amounts of acetone bodies in the urine. Its ten to fifteen grams of carbohydrate were derived from lettuce and fresh, cooked green vegetables. It was preceded by a preliminary period of several days of semifasting on fresh, cooked green vegetables alone. In two of the cases

the attacks were not modified either in degree or in number, though acetone was constantly present in the urine for several months. In the third the attacks stopped for a time, but this improvement may not have been permanent, as the attacks had appeared only at monthly intervals and the period of observation was short. This man had lived almost entirely on meat and cereals. The ketogenic diet was free from cereals and contained more fresh vegetables and lettuce than his former one. It therefore provided several new factors, viz., lowered calories, change in the mineral content toward the alkaline side—freedom from cereals and perhaps increase in vitamins as well as the acetone bodies from which it got its name. I cannot see why the benefit derived from it should be attributed to the acetone bodies alone. To summarize:

My experience with ketogenic diets in epilepsy is limited to three cases. One of these was apparently benefited. The improvement in this case cannot be attributed to acetone bodies alone because the ketogenic diet was in other respects a great improvement on the previous diet.

* * *

D. Schuyler Pulford, Woodland.—The latest noteworthy aid to the treatment of idiopathic epilepsy is the ketogenic diet. Credit for this diet is due largely to R. M. Wilder and M. G. Peterman, pioneers in the work.

The object of the diet is to produce a mild physiologic acidosis as evidenced by diacetic acid in the urine. This will occur when one eats five grams of fat to one gram of carbohydrate, each gram of protein being considered the equivalent of one-half gram of COH.

It matters little whether or not one uses a rigid formula in planning these ketogenic diets. The main thing is to hold the protein down to two-thirds of a gram per kilogram body weight in adults, and one gram per kilogram in children, supply adequate calories in fat and gradually cut out the carbohydrates until acetone bodies appear in the urine. Total calories should equal basal requirement plus 50 per cent

Clinically, in both old and young, it reduces the severity and number of convulsions and at times entirely banishes them. It has definite limitations, but patients, both children and adults, prefer to go on with it because of the improvement in their mental as well as physical well-being.

As an example, witness the further course of one of the cases reported by me to the California Medical Association in Oakland in 1926. It was necessary to institute a very rigid diet in the case of a little girl of ten, with a daily COH allowance as low as seven grams, over a period of six months. However, she was eventually free from both grand and petit mal attacks for nine months. In the past year it has been found that she has a COH tolerance of twenty grams, just like a diabetic, above which it is unsafe to go. This child's growth, development, blood pressure, and power to overcome infections has been normal, and both she and her family are satisfied to continue with this diet. Her mental condition is markedly improved.

I have three adult patients now under this diet treatment, so much relieved, if not cured, that they sing its praises. One other adult who took this diet for a year and a half has been free from convulsions for one year now, though on a moderately low COH diet during the past six months.

Another type of case worthy of mention is the person who has a definite organic basis for convulsions, as in one case recently operated upon by Doctor Naffziger. Preoperatively this girl of eighteen was markedly benefited by a ketogenic diet, though not cured. At operation the leptomeninges over the region of the precentral convolutions and adjoining sulci were thickened and milky in appearance, and in one or two places rather large cystic accumulations of fluid were present. Three months after the operation a convulsion returned. She can be made relatively comfortable again on a ketogenic diet. This case proves the diet of little use as a diagnostic procedure, as it reduced the number and severity of convulsions due to an organic cause.

Conclusions.—Neither the cause nor the treatment of so-called essential or idiopathic epilepsy is solved. Be it a neurosis, a functional disorder similar to insanity, or be it an allergic or a mineral or vitamin deficiency disease, nevertheless a ketogenic diet treatment should be offered every patient, be he old or young.

* * *

John J. van Paing, Santa Barbara.—The subject of epilepsy is so large and so generally misunderstood that a short discussion does not completely clarify the situation.

The classification of epilepsy cannot remain as it is at present if we are anxious to progress in the treatment of this symptom complex. We must first realize that Jacksonian convulsion is not epilepsy as it should be understood, but a symptom of organic brain disease, as tumor, scar, or an irritation that is purely local in its origin.

The classification of the definite attacks as grand mal and petit mal by the French authors should cover the subject epilepsy, and I sometimes think that petit mal should be eliminated from this classification. There would remain the grand mal attacks, consisting of tonic and clonic convulsions, rigidity, loss of consciousness, involuntaries and stupor following, and this convulsive manifestation should be the criterion by which we diagnose epilepsy.

We should eliminate entirely the so-called epileptoid seizures and convulsions other than those that come within the scope of grand mal. The seizures that we see wherein the patient has a series of convulsive attacks which terminate in the epileptic equivalents or epileptic psychoses

should not be classified as epilepsy, because the condition which terminates this class of cases is the same condition which was the etiological factor in the beginning.

The psychological factor is an important one, and some of the apparently miraculous cures have been brought about along this line of treatment. It is impossible for us to realize the conflict, the feeling of inferiority and the deeply hidden, primitive instincts operating to produce many cases of so-called epilepsy.

The work of Clark, Binswanger, Osnato, Pollock, and a host of other men has been important in many ways in that they show among other things the great amount of scientific research necessary to cover the great field of convulsive phenomena. But decerebrate rigidity or "spinal epilepsy" does not show us the cause any more than the ketogenic diet provides the cure. We must, first of all, have a new conception of the term "epilepsy," a new classification, a new standard, by which we can conceive the strict limitations of a symptom complex, so protean in its manifestations and so difficult to understand. A symptom complex or a disease that affects about three or four per thousand of our population is important enough to deserve a great deal more time and study than has been accorded epilepsy in the past.

We may find that cerebral inhibition, or rather the lack of it, is an important factor, but that is only a single step in the process and we must go beyond that.

The treatment of this complex will require much more than ketogenic diet or any type of food to solve the problem of alleviation or cure. The large number that have been treated by the ketogenic diet proves by the controls that it is a factor only and must not be used alone or we will be greatly disappointed. My personal experience with this diet has been that it decreases the frequency of convulsive attacks for a period of months, but not to such an extent that I have felt justified in continuing it. If this diet is tried on a large number of cases it will be found that at the end of a year the number of convulsions covering the whole group will be almost if not quite as frequent as those who have had the basic diet or the diet low in fat.

The emotional instability of this class of patients is proverbial and of course it still obtains because the primitive in man is of such a nature that he lives through a series of abridgements or compromises with and adjustments to his environment and his emotional reactions to life in that environment which in all probability induces a chemical reaction, and this type of chemical reaction which follows the environmental one would hardly be primary in operation and, therefore, to place a system of feeding or a type of food which would tend to neutralize this secondary intoxication or chemical reaction would be to put the cart before the horse in this particular phase of convulsive attack. Psychologically the epileptoid individual may be homosexual, sadistic and inferior as well as primitive in his sexual sphere, and some of our most atrocious murders and mutilations can be traced to this class of individuals while the convulsive phenomena are held in abeyance. We may look for this especially in those who are retarded and where they are not under custodial care. Much could be done by surgeons specializing in brain surgery in that class of cases showing symptoms of pressure scars, tumors, etc., and it should be the specialist's responsibility to see that these cases are placed in the proper hands.

The Story of the Christmas Seal.—Every year millions of Christmas seals are sold in this country to control and prevent tuberculosis. They have become a symbol of the great war that is being waged against an ancient, preventable disease. But in 1904 the Christmas seal originated in a small way to give a chance for health to a group of tuberculous children in a foreign country.

In that year a children's hospital was needed in Copenhagen, Denmark. A postal clerk in that city named Einar Holboell heard of this and conceived the idea that stamps, especially designed to decorate Christmas letters and packages, could be made to finance the cost of the building. His enthusiasm won for him the endorsement of the Danish royal family, and the first Christmas seal was designed and placed on sale in the post office. The good citizens of Denmark purchased enough of them to insure for the sick children the best medical and nursing care available.

A pioneer in the field of social service in America received a letter from his mother country bearing one of the bright-colored little stamps. His name was Jacob Riis, and his curiosity aroused by this new decoration, he inquired about its purpose. The possibilities of its use in the United States impressed him. He wrote an article that was published in the *Outlook* in which he described what the stamp had achieved in Denmark.

In that article, Miss Emily P. Bissell of Wilmington, Delaware, found the solution of her own problem, namely, how to raise $3000 for a tuberculosis pavilion in her state. She organized the first sale of Christmas seals in the United States and as a result the pavilion was built. In 1908 Miss Bissell was able to induce the authorities of the American Red Cross to undertake a nation-wide sale of tuberculosis Christmas stamps. Women's clubs, religious bodies, and local Red Cross chapters assisted in the campaign. From then on until 1920 the Red Cross conducted the sale of the seals.

From 1907 to 1910 the National Tuberculosis Association had been organizing its warfare against the disease with the support of foremost scientists, but with little funds. To strengthen the organization's work, the American Red Cross joined with it in the Christmas seal sale. The partnership lasted for ten years. Then, in 1920, it was dissolved because the American Red Cross desired to continue its annual roll call, begun in the years of the Great War, and it did not wish to appeal to the public for funds twice a year. Since that time only the double-barred cross, emblem of the tuberculosis movement, has appeared on Christmas seals.

Through the power of the Christmas seal, state after state was gradually organized to attack tuberculosis with a scientific program. The state organizations entered the larger cities and counties and formed local associations. Together, led by the national body, they have brought into existence nearly all of the present-day community machinery for combating tuberculosis.

The little stamps help to control the sources of infection especially to children, to educate everyone in health habits, and to prevent economic loss due to the death of producers. This year the National Tuberculosis Association and its affiliated organizations held the twenty-first sale of Christmas seals throughout the country.—*Helena L. Williams.*

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

MORE COMMENTS ON THE BOARD OF MEDICAL EXAMINERS AND THE PROPOSED "OCCUPATIONAL STANDARDS DEPARTMENT" OF CALIFORNIA

A New Name for the Proposed Composite Board.—In the December issue of this journal (page 414) were given some excerpts from a preliminary draft of a bill creating the proposed "Occupational Standards Department of California." In a later draft the name of the proposed department has moved up one step in dignity, for at this writing it seemingly is to be dubbed the "Vocational Standards Department," thus providing a compromise title between the licensing boards for "occupations" such as plumbers and the licensing boards for "professions," such as physicians; and which with the licensing boards for "vocations," such as the beauty specialists or cosmetologists, will create the composite or ensemble of licensure groups which are to be placed in this new department.

Mention was made of the fact that the chief of the department was to have the title of "director," and that this director—who might be a layman not coming under the domain of any of the occupational, vocational or professional boards listed in the proposed statute—was to be the executive officer of each of the dozen or more boards now existing and gathered together to form this new department. Since last month's draft was gotten out we are given to understand that the phraseology of some of the provisions has been further changed, by substituting the word "shall" in place of "may," so increasing the scope of authority conferred or duties imposed upon the department director.

* * *

Proposed Statute of Much and Special Interest to the Professions of Medicine, Dentistry, and Pharmacy.—So radical a departure from the methods of licensure and other functions of examining boards which for years have been in vogue for the professions of medicine, dentistry, and pharmacy, was bound to excite interest and study by members of these professions. In the southern end of the state, a series of conferences, which began in the fall of 1927, have been held by representatives of these three professions, with the object in mind that by exchange of opinion on the merits and demerits of provisions in the proposed statute, it might be possible to come to a joint conclusion on desirable modifications. In that way, it was hoped that the joint views of the three professions upon the principles and procedures involved might be presented to those state officials who were sponsoring the proposed measure. The results of these informal deliberations in the South were transmitted to northern colleagues in the three professions, who were likewise making a study of the problem.

Out of this exchange of opinions between members of the professions of medicine, dentistry, and pharmacy in different portions of California, certain conclusions have been gradually reached. Some of the opinions now held and which are here given as the informal, unofficial viewpoints of the colleagues who have been giving special attention to a study of the various issues, may be worthy of being placed in printed form, since they may have a suggestive value for all who are interested in the further consideration of the important principles and issues involved.

* * *

On What Grounds Could a Composite Board Control Be Legitimately Contended to Be Preferable to Separate Boards for the Professions of Medicine, Dentistry, and Pharmacy?—There are only two legitimate reasons which would seemingly justify taking away the independent existence, authority and responsibilities of the state examining boards of these professions, and changing the system of such independent entity, as is now existent in nearly all states of the Union, to a method which still must be acknowledged to be somewhat of an experiment.

These two reasons, which might justify such experimentation, could be stated to be: one, that through such composite board supervision greater efficiency could be secured for each of the boards in the proposed department, so that thereby greater and more efficient service might be rendered to the citizens of the state; and two, that because of such consolidation under one depart-

ment head, a money saving, especially of money raised by taxes from citizens at large, might be brought about.

Let us take up each of these two grounds, and consider to what extent, betterment could be attained along either or both lines.

* * *

Why Increased Efficiency in Licensure Board Functions Would Not Be Attained.—It must be conceded by all who have any knowledge of the educational, ethical and professional standards of the professions of medicine, dentistry, and pharmacy, that in the matter of the purely licensure work of their respective examining boards a lay director of a Department of Vocational Standards could be of practically no service that would make for increased efficiency.

Let us first consider licensure work proper. What knowledge or advice of value could such a lay department director bring, in such work as drawing up the examination questions, or in grading verbal or written answers for any one of these professions? The answer must necessarily be, that such a director not having skilled knowledge of these professions could necessarily have no opinions of value in such matters.

The same could be said of any lay or other department deputies, since it is inconceivable that learned professions having to do with the health and lives of citizens would permit intervention of any kind by paid departmental employees in the sacred work of safeguarding professional standards. For the standards of training and practice and the ethics of these professions are set by the members of such professions as a whole; and the representatives and leaders of those professions, and not deputy board employees, should speak for them.

Let us next take up that function of a licensing board which obligates it to prevent persons who are incompetent, or who have no legal right to practice, from so doing. In this function we have the basic reason for the existence of licensure boards, which is none other than the obligation of the state to protect its citizens from incompetent or vicious persons, who would practice occupations, vocations or professions, which in themselves have a somewhat intimate relationship to the health, lives or material interests associated therewith, of other citizens. It is on this ground that each state in the Union, in the exercise of the police powers granted by the Constitution of the United States, is at liberty to bring into being legislation that provides for certain licensing boards.

So that in carrying out this function of protection in the name of the state, the California examining boards in medicine, dentistry, and pharmacy are called upon not only to decide upon the eligibility of persons to practice in their respective professions, but they are obligated also to ferret out and prosecute all persons professing before other citizens to have a legal right and sanction to practice medicine, dentistry, and pharmacy, when such legal right and sanction do not exist.

Here again, the question arises as to whether a departmental chief or deputies reporting through him are as well or better qualified to pass on police and prosecution matters of this kind, and to carry out the executive actions in connection therewith, than would be the well-known members composing the three examining boards in question or the deputies whom at present, those boards themselves directly employ, subject to the general state laws covering such employment, and which deputies are made to report directly to these boards, instead of through a department chief, whom they would be more than apt to look upon as the source of real or final authority. What would be the results that could be expected from such a lay executive officer set-up?

So that it may be stated that the conclusions thus far reached by the colleagues who have been studying this proposed new department are that such a system as is therein provided would tend to break down rather than build up proper inspection and prosecution work of the boards, and that the interests of the three professions and of the citizens whom, through the licensing boards their members serve, would all suffer.

* * *

Why No Saving of Money, and Especially No Saving of Money From Taxpayer Sources, Would be Attained Through Such a Department.—For the last several years each of the licensure boards of California has been working under a budget, determined by the State Board of Control and the director of finance; no licensure board, no matter how great the amount of money in its reserve fund accumulated from licensure and other fees, being permitted to spend in excess of this budget which is each year provided.

But over and above that is this further important fact, that the moneys in these reserve funds of the California licensing boards in medicine, dentistry, and pharmacy have not come from taxpayer sources, but from the members of the professions involved.

In other words, these licensing boards in medicine, dentistry, and pharmacy are, and practically always have been, virtually self-supporting.

It is we, ourselves, who give this money to the state, on the supposition that it will be used to maintain the educational and practice standards of our respective professions, so that through such maintenance and elevation of professional standards, the physicians, dentists, and pharmacists of California may be able to give more efficient professional service to citizens, whose health or lives being in jeopardy, call upon members of these professions to give aid, in restoring and maintaining them as useful citizens of the commonwealth.

This fact, that in our professions we generously tax ourselves to protect the people from disease and injury, and to aid them more promptly to recover when they already suffer from disease and injury, and that we do this through main-

tenance of high professional standards, all at the expense, not of the citizens at large, but of ourselves, is a thought that we should not hesitate to emphasize before those who have only a superficial knowledge of our work.

* * *

An Interesting Discussion on the Issues Here Involved Which Is Printed in the Miscellany Section of This Issue of California and Western Medicine.—Illinois was the first of the states to inaugurate the system which has been here discussed. In one of the conferences in the South, one of the pharmaceutical colleagues brought the original manuscript and newspaper clippings bearing on the certificate scandal which developed not long after Illinois started its experiment. That paper, which was read in California some years ago, is so pregnant with important facts and suggestive thoughts that it is being printed in this issue.

Every member of the California Medical Association is urged to turn to the Miscellany section (page 65) of this issue of California and Western Medicine and to scan the facts and arguments therein presented. To do less, would be akin to disloyalty to the professional standards and issues at stake.

* * *

Action by the Council of the California Medical Association and by the Associated Professions of Dentistry and Pharmacy.—The Council of the California Medical Association will meet on January 12, 1929, and at that time a decision will be reached on the attitude to be taken concerning this proposed department, so far as the profession of medicine and the California Medical Association are concerned.

In the meantime a liaison committee has been appointed for conference with representatives from the professions of dentistry and pharmacy, the joint committee to make a further study of the entire matter.

Members of the component county societies of the California Medical Association, on their own accounts and through their society officers, should give this proposed department immediate study and consideration; and through their district councilor, or direct to the secretary of the California Medical Association, should inform the Council, which meets on January 12, what are their views, so that the members of the Council may be better able to reflect the wishes of the California Medical Association in any decisions reached.

THE NEW YEAR—MEMBERSHIP; THE JOURNAL; GREETINGS

Membership Campaign.—Another twelve months have come and gone. During this period just elapsed the California Medical Association has continued in steady though not exceptional growth.

It may be proper again to call attention to the advantages which would accrue to the interests of organized medicine and of the California, Nevada, and Utah Medical Associations, if every component county medical society in these states would embark upon an intensive survey of nonmembers who possessed credentials making them eligible to membership. Newly elected officers will find an outline of membership campaign plans in previous issues of California and Western Medicine (January, 1928, page 81; and May, 1927, page 665).

* * *

Increase in California and Western Medicine Advertising Rates.—It may be gratifying for members at large to know that the 50 per cent increase of advertising rates recommended last year goes into effect with this January issue, with practically no loss of advertisers, an indication that California and Western Medicine has made for itself a place of some value in the opinions of firms who seek to call their products to the attention of members of the medical profession. In this connection members of the California, Nevada, and Utah Medical Associations are urged to mention this journal in all requests for literature or price schedules. A considerable number of advertisers keep a careful record of the source of such inquiries and place their volume advertising patronage accordingly. Advertisers appreciate inquiries for information. Such requests for information cost members only a small amount of effort and postage, but may mean much in aiding the California Medical Association to build up its reserve funds and activities.

* * *

Greetings.—At this time California and Western Medicine wishes to avail itself of the privileges of the season, and to extend to every reader and patron its best wishes for a successful and happy year in 1929.

MEDICAL EDUCATION—VIEWPOINTS OF TWO CALIFORNIA DEANS

Medical Education Articles in This Issue.—Among the special articles which are printed in this January issue of California and Western Medicine are two papers, one written by Langley Porter, M. D., of San Francisco, dean of the Medical School of the University of California, and the other written by Percy T. Magan, M. D., of Los Angeles, dean of the College of Medical Evangelists. These two institutions, with the Stanford School of Medicine, are the three Class A medical schools of California.

The Medical School of the University of California has a career which extends back to the year 1862, when Dr. H. H. Toland founded a school which in 1872 was taken over by the University of California.

The College of Medical Evangelists is comparatively young, having come into existence so recently as 1909, but in size of undergraduate student body is the largest of the three medical schools in California, being at the same time the seventeenth largest medical school in the United States as regards numbers of students. Its origin, founding, and career are quite unique, not only in their variance from the usual history of institutions of medical learning, but also in the high

places which its graduates have taken not only in California, but in the examinations of the National Board of Medical Examiners and of the British and Foreign Possessions Examination Board.

The viewpoints of these two California colleagues, who as the heads of their respective institutions have facilities for special observation and knowledge on factors concerned with the modern-day teaching of medicine, should be of interest to Pacific Slope practitioners.

LAY DOMINATION IN PUBLIC HEALTH WORK—THE SHEPPARD-TOWNER ACT EXAMPLE

Improper Attitude by Lay Executives in Medical Organizations and Institutions.—Devotion to the scientific phases of professional work rather than to administrative activities related thereto, is almost characteristic of most members of the medical profession. As a result, more efforts than one have been made in recent years by keenly alert lay helpers who have been employed in public health work, for instance, to assume increasing authority, until such lay control practically usurps the rights of medical men; producing almost a sort of overlordship to physicians in public health societies and in hospitals, and creating a condition of affairs that is far from being justified or desirable.

A number of these lay public health executives, who in days gone by were brought into the work as clerical helpers, seemingly go farther than this and engage in carrying on propaganda in which it is asserted that physicians have no executive capacity and should have no direct or majority control of the management of certain public health organizations and institutions. This assumption or presumption on the part of such salaried lay persons becomes the more astonishing when one remembers that most of such public health organizations and institutions, if they did not receive so much gratuitous service from members of the medical profession, would probably not even exist. Some of these lay executives seem to hold that physicians should continue to do the altruistic work, but according to regulations largely outlined by the lay executives; who, it may be stated in passing, in very many instances derived what knowledge they possess of public health organizations and institutions largely through contacts with physicians.

* * *

The Sheppard-Towner Act.—An excellent example of how lay control in public health matters may build itself into a bureaucracy is noted in the efforts of the proponents of a continuation of the child welfare extension service in the children's bureau in the United States Department of Labor. This extension work may be said to have come into existence with a number of other so-called humanitarian after-war measures. The *Journal American Medical Association* of December 1, 1928, page 1721, again very properly calls the attention of members of the medical profession to some of the provisions of a bill before Congress at this writing, and known as "H. R. 14070, A Bill to Provide a Child Welfare Extension Service, etc."

The work which was carried on under the Sheppard-Towner Act; by action of Congress at a previous session, must cease on June 30, 1929. That extension was practically granted upon the pleas of the officers of the bureau concerned, that its affairs could not be wound up until that time.

As an expression of their appreciation and good faith (!) in having received such extension, the proponents of the bureau come now with a new bill which would practically perpetuate the work and which would give the bureau even greater powers than those granted in the Sheppard-Towner Act, and which powers in the Sheppard-Towner Act were construed to be inimical to the best public health and medical profession interests.

A perusal of the article above referred to should convince all county medical societies and all state association members that every congressman and senator from the states of California, Nevada, and Utah should be made acquainted with the fact that such legislation as is proposed in "H. R. 14070, A Bill to Provide a Child Welfare Extension Service," etc., is opposed by the large majority of members of the medical profession who practice in those states.

Every member of the C. M. A., the N. M. A., and U. M. A., can be of service by dictating a brief note expressing this opposition and sending the same to the congressman of his district and to the two senators of his state. County medical societies, through their presidents or secretaries, could also materially aid by doing likewise.

School of Medicine for Colored People of America. The School of Medicine of the Howard University was established in 1867 as one of the departments of the university of that name. While intended primarily for the instruction of students of the negro race in medicine, its doors have always been open to all properly qualified students regardless of race, sex, or creed. It was the first school in the United States to admit women to the study of medicine upon an absolute equality with men. One of its early graduates was Dr. Mary Spackman of the class of 1872, who had a large and successful practice in Washington throughout her lifetime.

Howard University School of Medicine has graduated 1367 physicians who have settled in many portions of the United States, the British West Indies, and foreign countries, and who have been for the most part unusually successful. Their regard for loyalty to their school is testified to by the fact that more than fifty of them subscribed and paid $1000 each to the endowment fund of the school.

The new building was given by the Government and equipped by a gift from the General Education Board at a cost of $500,000. In addition to the College of Medicine there are also colleges of dentistry and of pharmacy.

The definite purpose of the school is the giving to the colored people of America well-trained physicians, dentists, and pharmacists, for all of whom there is a crying need, since the supply in these branches of the medical profession falls far short of the demand.—*Medical J. and Record.*

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Notice of Error.—On page 349 of the November issue, 15 grams of hexamethylin tetramin should read 15 grains, four times a day.

Neuropsychiatry

Migraine—A Vascular Neurosis.—Migraine is a vasomotor disturbance due to many different stimuli acting on the vegetative nervous system. Such is the view that has been held by writers on nervous diseases for many years. They have spoken of spasm of the cerebral arteries, hyperemia and anemia of the cerebral hemisphere and thrombosis of cerebral vessels as causes of migraine headache, in the absence of anatomical proof that the cerebral vessels are supplied by nerve fibers. Recently, however, experiments by Forbes and Wolff [1] have shown that the circulation of the brain is controlled in part by cerebral vasomotor nerves.

The prevalence of vegetative symptoms during migraine attacks is a common observation. The pallor, followed by flushing of the skin, profuse perspiration, vomiting, and diuresis, are frequent symptoms. In addition evidences of venous turgescence are supplied by throbbing sensations and distended temporal veins. That the arteries of the brain may be involved has been suggested by the discovery by some patients that pressure on the carotid artery will alleviate the throbbing headache. Patients with transient paralysis, paresthesias and anesthesias present most dramatically the picture of severe disturbance occurring within the brain that can be accounted for only on the assumption of temporary vascular changes.

Pierre Janet [2] cites cases of migraine occurring in the depressive phase following periods of excitement, and ascribes them to "disturbances of vasomotor equilibrium associated with relaxation of psychological tension which has been keyed up beyond the period which the subject can actually bear." The statement, "I cannot allow myself to become angry because I know I shall suffer an attack of migraine," is typical of a migrainous patient. The anxiety attendant upon the anticipation and delivery of a lecture resulted, in one man, in paroxysms accompanied by lividity of the face, scintillating scotoma, throbbing headache, and nausea. These facts support the view that a profound temporary change occurs in the vegetative nervous system which causes vascular alterations. Migrainous persons are hypertonic, irritable, easily worried, given to depression, and inclined to manifest other evidences of neurosis. No matter how varied the symptoms of migraine may be, the personality type is usually the same. It may not be going too far to contend, as does one observer, that most neuroses depend upon circulatory disturbances and may be reasonably termed vasomotor neuroses.

Forbes and Wolff have developed a technique for observing and measuring changes in caliber of the cerebral arteries, with simultaneous measurements of cerebrospinal fluid pressure and intra- and extracranial vascular pressures. They have secured evidence that "the circulation of the brain is not regulated wholly from a distance by splanchnic or systemic vasomotor control," but that "constriction of (cerebral) arteries also follows direct application of epinephrin or stimulation of the cervical sympathetic nerves, whereas dilatation follows stimulation of the vagus." In a later experiment they show that "among the various factors which regulate cerebral blood supply one must include changes in osmotic tension of the blood." The point brought out by these experiments is that the vegetative apparatus exercises some control over the cerebral circulation. Pathologic evidence supports the vascular theory of migraine. There may be considerable increase in the number of blood vessels, and the walls of the small arteries may be thickened and degenerated. Attacks have become aggravated with the development of arteriosclerosis.

The effectiveness of small doses of luminal in some cases of migraine supports the vascular theory. Luminal is a circulatory depressant and causes collapse of the peripheral vessels. It is probably because of this action that the drug is effective in the neuroses in general.

Richard W. Harvey, San Francisco.

REFERENCES

1. Forbes, Henry S., and Wolff, Harold G.: Arch. Neurol. and Psychiat., 1057-1086, June, 1928.
2. Janet, Pierre: Psychological Healing, 1925.

Radiology

The Therapeutic Value of Radiation in Carcinoma of the Breast.—Though the radical operation for carcinoma of the breast has long been standardized, the outcome following its use has not been uniformly successful. In order to improve the percentage of good results, various attempts have been made to combine radiation with operation.

The principles as laid down by Halstead, Willy, Meyer, and Handley have long been accepted as the correct surgical procedure, but the technique of radiation therapy has varied. Sometimes the radiation has been administered by the so-called low voltage x-ray; at other times by the high volt-

age x-ray. Frequently it has been given preoperatively, but most often postoperatively. Latterly, with the increased amounts of radium at hand, that element has been used with increasing success.

The most recent publication in this country is by Lee,[1] who gives his impressions gained from an analysis of 355 cases observed over five years at the Memorial Hospital.

Lee, in tables presented on primary operable breast cases, gave the following figures:

(*a*) Preoperative radiation plus surgery plus postoperative radiation: forty-one cases, or 39 per cent, showing five-year cures.

(*b*) Surgery plus postoperative radiation: seventy-six patients, or 35 per cent, showing five-year cures.

(c) Radiation alone: forty-five patients, or 36 per cent, showing five-year cures.

When Lee compares surgery alone, with surgery plus postoperative radiation, 35 per cent are well at five years with the combined treatment, while only 15 per cent are well with surgery alone, which he admits is lower than other surgical clinics report. In discussing radiation Lee feels very definitely that preoperative radiation is of great value. This is at variance with the opinion of many men who condemn it on theoretical grounds because it may make the operation more difficult and that it may interfere with healing. These are valid objections, but Lee overcomes them by letting a period of at least three or four weeks elapse after the last treatment before operation is undertaken. What the form of radiation is, whether x-ray or radium, Lee thinks does not matter so much, but he holds that radium in the form of a pack is more efficient than the x-ray.

Webster,[2] an English observer, recently presented his experience along similar lines and showed the definite value of radiation with surgery. Even Handley, who is one of the outstanding advocates of surgery, resorts to radiation. Besides the complete excision of the breast, he inserts a tube of radium, highly filtered, into each parasternal space to prevent mediastinal involvement, and at the end of four weeks, x-ray treatment is given. Under this regimen he has 85 per cent of his cases free from any evidence of the disease at the end of three years.

Keynes,[3] an English surgeon who is working with radium loaned by the government through the medical research council, has been using radium element in the form of needles. These are plunged around the breast and into the gland-bearing areas, where they are left as long as a week. From the short experience he has had he is of the opinion that the results compare favorably to those obtained by surgery.

It will take additional observation and time before agreement on the correct technique of radiologic treatment in breast carcinoma is reached, but the fact that radium therapy alone compares favorably to surgery in early cases, and that radiation with surgery gives better results than surgery alone, is indicative of what can be attained in the treatment of carcinoma in well-controlled institutions. At the recent International Conference on Cancer in London, Handley[4] stated that radium alone could destroy malignancy, but inasmuch as there was always the element of uncertainty in the extent of its action, he felt that surgery and radium should be used together in the same case to insure the patient the benefits of both methods of attack.

Saltzstein,[5] reviewing the carcinoma question in Detroit, gave the impression that radiation in conjunction with surgery in carcinoma of the breast is, at best, of doubtful value. Be this as it may, a careful perusal of his article seems to show that whatever surgery was done on breasts in that community was not always done according to the radical procedure. In other words, some of the surgeons were only doing partial excisions, leaving the unfinished work to the radiologist. Such a method is very apt to lead to poor results since the growing edge of the malignant process is too often incised in the incomplete operation, with the result that early recurrence and metastasis take place, bringing discredit to both surgery and to radiation therapy.

These recent articles are of interest since only one of the papers was written by a radiologist. In other words, it represents the opinion of surgeons who have been impressed by the results of radiation therapy as seen in institutions where a careful follow-up permits an unbiased opinion.

Orville N. Meland, Los Angeles.

REFERENCES

1. Lee: The Therapeutic Value of Irradiation in the Treatment of Mammary Carcinoma, Amer. Surg., July, 1928.

2. Webster: Radiology and Surgery in Carcinoma of Breast, Lancet, July 14, 1928.

3. Keynes: Radium Therapy in Primary Carcinoma of the Breast, Lancet, July 21, 1928.

4. Handley: Report on International Conference on Cancer, Lancet, July 14, 21, 1928.

5. Saltzstein: The Average Treatment of Cancer, J. A. M. A., August 18, 1928.

Syphilology

Bismarsen—An Addition in the Therapy of Syphilis.—Within the last year the new drug bismarsen has won for itself a place among the syphilologists' instruments of warfare. Clinically it is a compound of bismuth and arsphenamin, bismuth arsphenamin sulphonate. It is a yellowish powder, and is quickly soluble in water. Its toxicity is low—white rats tolerate 500 mg. per kilogram of body weight and its chemotherapeutic index is high, as the dose necessary to destroy the spirochetes in an initial lesion is only from 5 to 10 mg. per kilogram of weight. Roentgen-ray studies show that it is absorbed from the muscles two hours after injection. It will cure syphilis in the experimental animal as judged by the standards of observation, serology and negative lymph node transfer.

It has been used on a large number of patients, and the results would seem to indicate that it ranks almost equal to the older arsphenamins. An

important point is ease of administration, it being given intramuscularly. When dissolved in distilled water to which 2 per cent butyn has been added, it is well tolerated by the patients. The injections produce about the same amount of pain and tenderness as do the ordinary bismuth injections.

There are fewer indurations seen after its use, probably because it is given in an aqueous vehicle rather than in an oily one. A course consists of about twenty injections of .2 gram each given twice a week. Patients with seronegative primary syphilis treated with this drug have almost uniformly remained symptomatically and serologically negative.

Patients with late primary and secondary syphilis have become Wassermann-negative after about fourteen injections and have suffered very few serologic, cutaneous or mucous tissue relapses. Perhaps one of the most striking facts in these early cases is the very low incidence of positive spinal fluid findings found after treatment. In this respect bismarsen excelled arsphenamin treatment. Healing of the primary and secondary lesions has been somewhat slower than when arsphenamin is used—the spirochetes disappear from the chancres in about thirty-six to seventy-two hours. Bismarsen has reduced to negativity some cases which had remained "Wassermann-fast" after the usual methods of treatment. It is safe and valuable in cardiovascular syphilis. Here it has given marked symptomatic relief although the serologic results have not been striking. The results in neurosyphilis have not been any better than those from the use of the other arsphenamins.

Very few untoward effects have been noted. The few nitritoid reactions seen after its use have been mild. The skin tolerates it nicely. One instance of exfoliative dermatitis has been reported. It should be used only with caution where there is a history of previous dermatitis from arsphenamin. The gums, gastro-intestinal tract and kidneys bear its administration well.

Time alone can be the judge of the value of any new drug, but evidence so far points toward bismarsen being very worthy of a place among our antisyphilitic agents.

H. J. Templeton, Oakland.

Immunology

Nontoxic Therapeutic Vaccines.—The most serious objection to the vaccine therapy of acute infectious diseases is the danger of increasing the already existing toxemia. The discovery of Ramon that certain bacteria can be detoxicated by formaldehyd without destroying their antigenic properties is, therefore, of clinical significance.

Wherry [1] and his coworkers of the department of bacteriology and preventive medicine, University of Cincinnati, have recently tested the value of such detoxicated vaccines in the treatment of typhoid fever. From their preliminary data it appears: (1) that the course of typhoid fever is shortened by such vaccines; (2) that the incidence of complications is decreased (7 per cent with the vaccine, as compared with 36 per cent in their untreated controls); and (3) that the death rate is decreased. They report no deaths in twenty-eight cases thus far treated with the vaccine, as compared with a death rate of 10 per cent in their untreated controls.

The authors ask for help in collecting additional data before drawing a final conclusion. The technique for the preparation of the nontoxic vaccine is given in their paper.

W. H. Manwaring, Stanford University.

REFERENCE

1. Wherry, W. B., Le Blanc, T. J., Forhay, L., and Thomas, R.: The Treatment of Typhoid Fever with Detoxicated Vaccine, Jour. Infect. Dis., 1928, Vol. xliii, p. 189.

University of California Man Studies Sex Among Insects.—Calling attention to the importance of the amount of food received by organisms during the early stages of life, Professor W. B. Herms, parasitologist and entomologist at the University of California, has just demonstrated that the ratio of male to female among certain insects can be varied at will by the amount of food given them during the larvae state.

He found that by limiting the feeding period of larvae of the green bottle fly he could raise almost twice as many males as females, while with a plentitude of food he obtained about two or three times as many females as males.

He found that one species of mosquito reacted just the opposite of this. By feeding the larvae of the mosquito a limited amount of yeast he obtained about one-half as many males as females, while by feeding four times as much yeast he obtained more males than females.

The food, he explains, does not alter the sex characteristics of the larvae; it merely determines which sex shall predominate among the grown insects of the experimental lot by allowing the weaker sex to die. That is, among the bottle flies, the male larvae can exist on less food than the female, consequently more of them live to maturity. Among the mosquitoes just the opposite holds, the females subsisting on a limited diet more successfully than the males.

In addition to this effect on sex, Professor Herms found, also, that the amount of food given the larvae had an important effect on the size of the later developing adult insect. In the case of the bottle flies he found that those which received a very limited amount of food developed shorter wings than the others. But, contrary to what might be supposed, the longest wings were not found on those which had received as much food as they would take. The greatest average wing length occurred in the group which had merely a moderate supply of food during the larval stage. The same fact was observed with regard to the mosquitoes, though to a smaller degree.

Professor Herms obtained his variation in food supply by the following method. In the case of the green bottle flies (*Lucilia sericata*) a batch of larvae was allowed to feed on beef lung. After thirty hours of feeding, he began removing them, one hundred at a time, at six-hour intervals; allowing them to continue development in a bed of sand. As a result of this some of the flies had only thirty hours of feeding, and some as much as ninety-six hours. In the case of the mosquitoes (*Theobaldia incidens*), larvae of the mosquitoes were placed in jars of distilled water, seventy-five or one hundred to a jar. To these yeast was fed in varied amounts, from one gram to five grams for each jar.—*U. C. Clip Sheet.*

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President
MORTON R. GIBBONS.....President-Elect
EDWARD M. PALLETTE.....Vice-President
EMMA W. POPE.....Secretary

OFFICIAL NOTICES

Council Meeting.—The next meeting of the Council will be held at the Palace Hotel, San Francisco, January 12, 1929, at 10 a. m.

* * *

Membership Record—1928

County	Delinquents	Members
Alameda	3	406
Butte	1	20
Contra Costa	3	30
Fresno	4	103
Glenn	0	8
Humboldt	1	33
Imperial	2	22
Kern	0	48
Lassen-Plumas	0	14
Los Angeles	54	1684
Marin	0	20
Mendocino	1	15
Merced	2	20
Monterey	2	27
Napa	0	23
Orange	1	88
Placer	1	29
Riverside	1	49
Sacramento	0	127
San Benito	1	7
San Bernardino	0	103
San Diego	4	223
San Francisco	12	920
San Joaquin	0	83
San Luis Obispo	1	11
San Mateo	3	31
Santa Barbara	0	68
Santa Clara	2	143
Santa Cruz	1	29
Shasta	0	10
Siskiyou	0	15
Solano	1	18
Sonoma	1	44
Stanislaus	2	38
Tehama	1	11
Tulare	0	41
Tuolumne	0	5
Ventura	2	24
Yolo	2	23
Yuba-Sutter	0	14
Total	109	4627
1927 total		4410
Gain in 1928		217

The above table again graphically pictures the growth of the California Association, the effective work of the forty county secretaries, and the loyalty of the membership.

* * *

Coöperation of Members Asked in Study on Medical Costs.—The Committee on the Cost of Medical Care is at present securing data from cross sections of ten different states. California is one of the ten selected; and through local health officers or organizations a specialized study is to be made in various cities, towns, and counties.

The secretary of the American Medical Association, Dr. Olin West, has asked for the coöperation of the members in the localities selected, with the representatives of these investigating committees, particularly as regards corroboration of statements concerning diagnosis and of fees claimed to have been paid by said patients.

The following localities have been selected for investigation: Cities of Long Beach, Los Angeles, Oakland, Pasadena, Riverside, Sacramento, San Francisco, San Luis Obispo, and Santa Barbara; counties of Madera, San Diego, and San Joaquin; and towns of Crockett, Pittsburg, and Woodland. The work is now in progress, and the coöperation of the members in these localities is earnestly requested.

* * *

Addressograph Service.—The California Medical Association has installed an addressograph in the state office and is now prepared to furnish this service, which our members have so frequently requested. Envelopes, professional cards, reprints, and letters by our advertisers will be addressed to members of the California Medical Association at a minimum cost.

Changes in mailing address will be kept to date monthly. Rates will be furnished on request.

Send your orders and envelopes to be addressed to 1016 Balboa Building, 593 Market Street, San Francisco.

* * *

Notice to Members.—See Readers' Forum, page 70, this issue.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The annual meeting of the Alameda County Medical Association was called to order by President Lohse at 8:20 p. m. at the Ethel Moore Memorial Building, Oakland. The program for this meeting was presented by the staff of the new Peralta Hospital and consisted of a symposium on "Gastro-Intestinal Disorders" both from a medical and surgical standpoint. Dr. E. M. Loomis was the first speaker, discussing the newer theories of the etiology of the vomiting of pregnancy. The doctor said that the chief bugaboos of the obstetrician were eclampsia and the vomiting of pregnancy, and that recent researches pointed to the fact that both were dependent upon the same pathologic physiology. While eclampsia is decreasing in instance, vomiting of pregnancy is on the increase. The theory sponsored by Doctor Loomis was that both conditions are due to hypoglycemia. He reported experimental work, which has been done on series of cases including both mild and severe types which were very successfully handled by the administration of glucose. The second paper of the evening was by Q. O. Gilbert on "Duodenal Stasis." Doctor Gilbert reviewed the physiology and anatomical changes which might bring about this condition, advising careful selection of cases for surgical treatment. The third paper was on the "Pathologic Physiology of Intestinal Obstruction" by Fletcher B. Taylor. The doctor illustrated his talk with lantern slides, saying

in part that an unrelieved obstruction causes death, and, in general, the higher the obstruction the more rapid the death. He pointed out that various authors have thought the effects due to (*a*) intoxication, (*b*) loss of necessary metabolites, (*c*) splanchnic shock, the first two offering the most practicable information. He reviewed Whipple's work on obstruction symptoms in normal animals rendered toxic by the injection of proteoses precipitated from obstructed bowel content, and also the work of Mortan and Stabius, who prolonged the lives of animals with obstruction by the use of antitoxin for *B. welchii,* which suggests the possibility that the proteoses of Whipple or the toxin of *B. welchii* may contribute as extrinsic poisons to the toxemia or death of the subject. Reviewing the blood chemistry changes found in the condition, he said that there is a rise in the nonprotein nitrogen of the blood, and in blood bicarbonate, but a marked drop in chlorids due in part to excretion into the lumen of the obstructed bowel. The doctor called attention to the fact that intravenous administration of salt solution saves the animal. The fourth paper was on the "Treatment of Intestinal Obstruction" by Dexter N. Richards, who stressed the importance of early surgery and the administrations of quantities of fluids and sodium chlorid. Dr. A. H. Rowe discussed the physiological obstruction in diabetes, saying that probably all cases of severe acidosis and coma due to diabetes mellitus are accompanied by peristaltic disturbance and cessation of digestion, which results in nausea, vomiting, and often regurgitation into the stomach of dark duodenal contents. The profound disturbances are probably due to a toxic ileus resulting from the severe acidosis. The doctor pointed out that it is extremely important to lavage the stomach of patients in severe diabetic acidosis and to repeat the process if there is any indication of reaccumulation of duodenal regurgitation into the stomach. Such lavage is probably best done with the Jutte tube introduced through the nasal passage. Care should be taken to prevent the insufflation of the stomach contents into the bronchial tract. Doctor Rowe reported cases in which such treatment of paralytic ileus had been necessary. The last discussion of the evening was presented by Dr. W. B. Palamountain on the subject of "Some Surgical Aspects of Peritonitis." The speaker considered peritonitis in its relation to intestinal obstruction. He said that the clinical symptoms of peritonitis and obstruction are so much alike that it is often impossible to distinguish between them. They may be associated, and if so, it is necessary to treat the obstruction as well as the peritonitis even though it be secondary to the inflammatory condition. He called attention to the fact that the intestine, greatly distended with gas and fluids, has lost its peristaltic power and that peristalsis can only be restored when such pressure is relieved by drainage. The pressure within obstructs the circulation which aids in maintaining the paralysis. The doctor advocated drainage with the washing out of the distended segment with salt solution. The discussion on this symposium was opened by Doctors Strietmann and Dukes.

The scientific program was followed by the annual reports of the officers and the chairmen of the standing committees, after which the tellers announced the results of the election and the officers for the ensuing year were installed. There being no further business the meeting adjourned.

GERTRUDE MOORE, *Secretary.*

CONTRA COSTA COUNTY

The annual banquet of the Contra Costa County Medical Society was held in Martinez, November 17, in the Veterans Memorial Hall, at which a duck dinner was enjoyed, Dr. John Beard acting as toastmaster. Mrs. I. O. Church of Martinez gave several vocal selections, assisted by Mrs. Elvira Johnson at the piano. A number of miniature motion picture films, comic and educational, were shown by Dr. Fitzpatrick of Martinez.

A vote of thanks was given Dr. E. Merrithew of Martinez, who was responsible for the plentiful supply of "ducks."

There was a splendid crowd from all parts of the county, and it was agreed that such informal gatherings of doctors and their wives promote a closer bond of friendship among professional brethren.

* * *

At a well-attended meeting held at the home of Dr. M. L. Fernandez of Pinole, the Contra Costa County Medical Society concluded its business for the year by electing officers for the ensuing year of 1929.

The following were elected to office in the society: St. John L. Hely of Richmond, president (second term); J. W. Bumgarner of Richmond, vice-president; S. N. Weil of Selby, secretary-treasurer; J. M. McCullough of Crockett, delegate; St. John L. Hely of Richmond, alternate delegate; John Beard of Martinez, censor (three-year term).

The meeting night of the society was changed from the second Saturday of each month to the second Tuesday of each month by unanimous vote of those present.

Discussion as to how the meetings could be made more attractive in order to obtain a better attendance was held, and it was decided by the chair to appoint two members to be responsible for the scientific and social arrangement for each meeting. Doctors U. S. Abbott and J. W. Bumgarner are to arrange the meeting for January 8, 1929, to be held in Richmond.

At the close of the meeting Mrs. M. L. Fernandez served a very delightful supper.

Those present: U. S. Abbott, J. W. Bumgarner, H. L. Carpenter, L. St. John Hely, M. D. Keser, L. H. Fraser, H. Vestal of Richmond; M. L. Fernandez, Pinole; John Beard, Martinez; J. M. McCullough, W. A. Rowell of Crockett; S. N. Weil, Selby.

S. N. WEIL, *Secretary.*

FRESNO COUNTY

At the November meeting of the Fresno County Medical Association the following officers were nominated for the year 1929: Charles A. James, president; R. W. Dalgren, first vice-president; Mary Butin, second vice-president; J. M. Frawley, secretary-treasurer; N. J. Dau, assistant secretary-treasurer. Delegates to the state convention, T. F. Madden, and C. O. Mitchell. Alternates, A. E. Anderson and W. G. Milholland. Governor, E. R. Scarboro.

The evening was then given over to the discussion of medical education, the principal addresses being made by Doctor Porter, dean of the Medical College of the University of California, and Doctor Ophüls, dean of Stanford Medical College.

Doctor Porter said that the principal function of the physician is to readjust people. Those who cannot be readjusted must be helped and made as comfortable as possible. The function of the medical school is not to teach the student everything about medicine, but to teach him how to use the method of science in carrying out his daily work, always bearing in mind the interest and welfare of the patient.

Doctor Ophüls stressed the point that the main function of the medical school is the training of medical practitioners and that, therefore, their training should be practical. The students should have the assistance of men who are actually in practice; otherwise they are not in touch with the problems of practice.

Doctor Ophüls also discussed the relation of the practitioner to the public health movements. He be-

lieves that the medical man should be a leader in the field of preventive medicine and not a follower of the layman. This can be achieved by giving instruction to the medical student in the college. Another important feature in the medical education is the training of the specialist. This should be done after a period in practice.

Dr. Thomas F. Madden said he thought that the time had come when the medical profession, in order to retain its prestige, must give up its mystery and educate the community. The younger men should speak before lay organizations and tell them what is going on in the medical world.

Dr. C. P. Kjaerbye considered that the question for the medical schools to decide was one of selection. Men who have scientific bent should be encouraged to perfect themselves in the fundamental sciences, but those who are chiefly interested in the readjustment of thir fellow man should be brought as early as possible into contact with the cases.

Dr. C. O. Mitchell thought that one important function of the medical college which was neglected was the training of the student in business methods.

This meeting was public, and was attended by many of the school teachers and public health workers of the county.

* * *

The December meeting of the Fresno County Medical Society was held in the Fresno State College Auditorium, and was open to the public.

Dr. Charles Kofoid of the University of California was the speaker of the evening. He interpreted the Canti moving-picture films regarding the action of radium and x-ray on the growth of transplant cancer tissue grown on media. The hall was filled, and Doctor Kofoid was apparently very much appreciated.

Following the lecture, a short business meeting was held at which the annual election of officers took place.

JOHN M. FRAWLEY, *Secretary.*

PLACER COUNTY

The Placer County Medical Society met in the Masonic Hall at Auburn, November 17, the meeting being called to order by Vice-President J. Gordon Mackay.

There were present the following members and visitors: Members—Doctors Mackay, Rooney, Fay, Russell, Durand, Thoren, Peers, C. Conrad Briner, Monica Stoy Briner, L. B. Barnes, Dunievitz, Eveleth, Myers, and Kalman. Visitors—Mr. Thoren of Weimar, Doctors Paul Barnes of Loomis, Kanner, Sevier, and Haig of Sacramento; Illick of Lincoln, and Kuhn of Weimar.

This being the annual meeting it was the date of election of officers. The election resulted as follows: Max Dunievitz of Colfax, president; C. Conrad Briner of Lincoln, vice-president; Robert A. Peers of Colfax, secretary-treasurer; Charles J. Durand of Colfax, associate secretary; C. E. Lewis of Auburn, delegate; J. A. Russell of Auburn, alternate.

Vernon V. Rood, M. D., of Grass Valley, a member in good standing of the Butte County Medical Society, having presented his transfer card, was elected to membership in the Placer County Medical Society.

Paul D. Barnes, M. D., of Loomis was also elected to membership.

F. E. McCullough, M. D., of North Sacramento, having applied for transfer to the Sacramento Society, such transfer was granted.

Following the business meeting the following literary program was presented:

Doctor Dunievitz of Colfax presented a series of cases as follows:

Two eases of myelogenous leukemia—one in a male eighteen years of age, of known two months' duration, whose white count ran from 400,000 to 600,000. The patient had been treated with deep x-ray therapy, without change in his condition. This man had a severe sepsis and pyemia two years previously. The second case was a woman about fifty-five years of age, of known duration of about twenty years. She had had x-ray therapy with definite benefit. During the course of the illness she had had pneumonia twice and peritonsillar abscess once, making splendid recoveries. Her count had been as high as 300,000, at present running about 30,000.

Doctor Dunievitz also presented a case of perforation of aorta with hemopericardium in which all the physical signs, as well as fluoroscopy, indicated an aneurysm of the ascending aorta, but which was shown at autopsy to be a case of perforated aorta, apparently of atheromatous origin.

X-ray pictures of two cases of dextrocardium and situs transversus, both of which had come under his observation within a period of one week, were shown. One of these patients died shortly after of acute pulmonary edema and pericardial effusion.

Two unusual cases of goiter were then presented—one a man about fifty-five years of age where there was extreme calcification of a greatly enlarged thyroid gland, with pressure symptoms but no thyroid toxicity. The other was an enormous adenomatous goiter with pressure symptoms and definite hypothyroidism. This goiter weighed 850 grams after removal.

The last case Doctor Dunievitz presented consisted of x-ray pictures of a man who had had two spontaneous pneumothoraces—the first five years ago at the left apex, and the other one month ago at the left base.

Following the case presentation, Dr. Thomas R. Haig of Sacramento gave a very instructive talk on "Fractures of the Foot and Ankle." Doctor Haig discussed in detail fractures of the individual bones of the foot and ankle, going very thoroughly into the treatment of the various types of fractures which can occur in this region. His address was extremely interesting and practical. It was discussed by Doctors Dunievitz, Illick, and Haig.

There being no further business the meeting adjourned. ROBERT A. PEERS, *Secretary.*

SAN BERNARDINO COUNTY

The president being absent because of illness, the first vice-president, Dr. Walter Pritchard, called the meeting to order at 8:10 p. m.

Twenty-three members were present, the small number being due to the influenza epidemic.

The minutes of the previous meeting were read and approved.

A letter from the Los Angeles Milk Commission was read and approved.

The notification of the postponement of the "Clinic Week" of the Los Angeles Medical Society was read.

The question of the publication in the press of a bulletin regarding influenza was presented by Doctor Pritchard, and after a general discussion it was moved and seconded and passed that this be done. Articles will be prepared by Doctor Pritchard.

The program of the evening was then entered upon:

Exhibition of Cases of Arthritis from the Medical Service of the County Hospital by Dr. Gayle Moseley, Chief of Staff.

Prenatal Care and Its Value in Obstetrical Prognosis by Dr. Suzanne Parsons of the Bureau of Child

Hygiene, California State Department of Public Health.

Between the first and second papers the society members had the privilege of listening to our councilor, Dr. Lyle Kinney of San Diego.

Luncheon was served at 10 p. m.

E. J. Eytinge, *Secretary.*

SAN DIEGO COUNTY

At the annual meeting of the medical society at the close of election day the following names were announced as the selection of officers for 1929:

James F. Churchill, president; A. E. Elliott, vice-president; W. H. Geistweit, Jr., secretary; W. W. Belford, treasurer. Councilors: F. Macpherson, T. O. Burger, J. W. Sherrill. Delegate (two-year term): Martha Welpton. Alternate (two-year term): Lillian B. Mahan. Milk Commission (three-year term): W. W. Belford. Directory: Lillian B. Mahan.

Following the dinner at which these announcements were made, the society was treated to two excellent papers by their guests from Salt Lake City. Joseph E. Tyree, M. D., gave a comprehensive outline of the surgery of the foot, discussed by Doctors Macpherson and Doig. Dr. George Richards presented a well-illustrated discussion of ulcer of the stomach, drawing upon his rich experience in the clinic in Salt Lake City to give his audience some very practical views on this important subject. His paper was discussed by Doctors Howard, Stealy, Churchill, Pollock, and Richards.

The November meeting of the medical staff of Scripps Memorial Hospital was featured by a presentation of that always practical subject, "Colitis" by Dr. A. B. Smith. The doctor's approach to his subject was from the standpoint of the roentgenologist, and was splendidly illustrated throughout by many x-ray films. Doctor Weiskotten opened the discussion with some illuminating remarks on the interpretation of films of the gastro-intestinal tract. Discussion was continued by Pollock, Oatman, Burger, Potter, and Parker.

Doctor McEachren and Father Mouillinier, representing the American College of Surgeons, were in town December 7 in the interest of hospital betterment.

Robert Pollock.

SAN JOAQUIN COUNTY

The annual meeting of the San Joaquin County Medical Society was held at the banquet table, Hotel Lincoln, Thursday, December 6, at 7 p. m.

After an excellent dinner the meeting was called to order by John J. Sippy, president. Twenty-seven members were in attendance.

The chair appointed Doctors F. S. Marnell, C. A. Broaddus, and Fred Foard to act as tellers.

The minutes of the previous meeting were read and approved. The annual report of the secretary-treasurer was read.

Moved by Dewey R. Powell, seconded by Doughty, that the report of the secretary-treasnrer be mimeographed and a copy of it mailed to every member of the society. The motion carried.

The admissions committee reported favorably on the application for membership of Dr. Eisuke Islukawa.

The necrology committee submitted a short obituary of our departed members, Doctors Tuggle, Stagner, and Maggs. These obituaries are printed on page 61 of this issue.

The report was received and spread upon the minutes.

* * *

A communication from the secretary of the California Medical Association relative to the Committee on the Cost of Medical Care was read.

Action: Moved by Doctor Dozier, seconded by Doctor Kaplan, that the program committee procure Dr. Nathan Sinai, member of the Committee on the Cost of Medical Care, as speaker for our January meeting. The motion carried.

A communication from the secretary of California Medical Association relative to the subject of "Bedside Medicine" or "Medicine Today" as they appear in California and Western Medicine was read and ordered filed.

A communication from Dr. J. D. Dameron relative to the Crippled Children Act, as conducted by Dr. Markel of San Francisco, was read.

Action: Moved by Doctor Dozier, seconded by Doctor Doughty, that the secretary be instructed to write a letter of appreciation and thanks to be sent to the Rotarians of Stockton for their splendid assistance in maintaining the clinic for crippled children. The motion carried.

The tellers reported the result of the election as follows: C. V. Thompson, president; F. G. Maggs, first vice-president; G. H. Rohrbacher, second vice-president; Fred J. Conzelmann, secretary-treasurer.

Board of Directors—J. W. Barnes, H. J. Bolinger, H. S. Chapman, R. T. McGurk, B. J. Powell, Dewey R. Powell, and George H. Sanderson.

Admissions Committee—John J. Sippy, chairman; J. P. Hull, C. F. English, S. R. Arthur, and C. A. Broaddus.

Ethics Committee—Linwood Dozier, chairman; Minerva Goodman, J. E. Nelson, H. C. Peterson, and N. E. Williamson.

Finance Committee—J. D. Dameron, chairman; J. V. Craviotto and Dewey R. Powell.

Program Committee—George H. Sanderson, chairman; G. H. Rohrbacher and P. B. Gallegos.

State Delegates—J. W. Barnes, B. J. Powell.

Alternates—G. H. Rohrbacher, Margaret H. Smyth.

Due to the death of Doctor Maggs, the office of first vice-president was vacant.

Dr. Dewey Powell nominated Dr. Linwood Dozier for the office of first vice-president. The nomination was seconded by Doctor McGurk.

Doctor Dozier was unanimously elected first vice-president.

The chair presented Dr. Alson Kilgore of San Francisco, who gave an interesting and very practical talk on the subject of "Cancer of the Breast."

A lively discussion followed in which Doctors Dozier, Blackmun, English, Chapman, Kaplan, Barbour, Sheldon, and McGurk participated. In closing Doctor Kilgore remarked that cancer meant the early treatment of a simple problem, rather than the late treatment of a serious problem.

Moved by Doctor McGurk, seconded by Doctor Broaddus, that the meeting adjourn in memory of our departed colleague, Doctor Maggs. The motion carried.

Fred J. Conzelmann, *Secretary.*

SANTA BARBARA COUNTY

The regular monthly meeting of the Santa Barbara County Medical Society was held on Monday, November 12, at 8:15 p. m. in the St. Francis Hospital, with President Sansum in the chair.

There were fourteen members of the society present.

Dr. Horace Pierce gave a very interesting talk on the injection treatment of varicose veins, showing four cases with the results of treatment, which was followed by questions and discussions.

Doctor Atsatt then presented three interesting and instructive reels of "Posture and Rickets" pictures.

The meeting then went into executive session, and a communication from Doctor Nuzum regarding Heart Clinic was read. It was moved, seconded, and

carried that in the near future a meeting be devoted entirely to heart conditions.

An invitation to the annual clinic of the Los Angeles County Medical Society, December 3-8, was read and ordered filed.

A communication from Doctor Pope of the California Medical Association regarding an investigation on the cost of medical care now being conducted, and stating that Santa Barbara was one of the selected localities, was read and ordered filed.

Doctor Means then spoke of the importance of reading the articles regarding health centers and free clinics in the proceedings of the House of Delegates.

There being no further business the meeting adjourned.

* * *

The regular meeting of the Santa Barbara County Medical Society was held on Monday evening, December 10, at the University Club.

Dinner was served at 7:15 p. m. to twenty-three members of the society.

At the conclusion of the dinner Dr. John Woolsey of San Francisco gave a most interesting and instructive illustrated talk on stomach surgery of today. The subject was then discussed by Doctors Brown, Robinson, Thorner, Freidell, Stevens, and Means.

At the conclusion of the scientific program the society went into executive session, and Doctors Otto L. Munch and William R. Hunt were unanimously elected to membership.

The president then appointed the following as chairmen of committees for the annual meeting to be held January 14, 1929:

Program Committee—Doctor Brush.

Entertainment Committee—Doctor Profant.

Supper Committee—Doctor Means.

There being no further business the meeting adjourned. W. H. Eaton, *Secretary.*

SANTA CLARA COUNTY

At the annual meeting of the Santa Clara County Medical Society, November 21, the following officers were elected for the year 1929:

E. P. Cook, president; Karl Pelkan, first vice-president; A. H. McFarlane, second vice-president; R. H. Prien, third vice-president; C. M. Burchfiel, secretary; Harry Hoag, treasurer. Delegates: Fred S. Ryan and L. Boonshaft. Alternates: C. M. Burchfiel and E. M. Miller. Councilors: J. R. Williams, E. M. Miller, and B. E. Loehr.

C. M. Burchfiel, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Kern County—Milton M. Kay, Shafter.

San Francisco County—Coleman A. Block, F. Edwyn Garfinkle, Berenice G. Peacock, Angeline Piscitelli, San Francisco.

Transferred Members

John F. Brownsberger, from Los Angeles County to North Carolina.

James Eaves, from San Francisco to Alameda County.

William W. Eldredge, from Los Angeles to San Bernardino County.

Ruth Carpenter Hart, from Sacramento to Siskiyou County.

Frank E. McCullough, from Placer to Sacramento County.

Marcus W. Pascoe, from Kern to Los Angeles County.

Orville Rockwell, from Humboldt to San Francisco County.

Vernon V. Rood, from Butte to Placer County.

Deaths

Franklin, Blake. Died at Los Gatos, December 1, 1928, age 52 years. Graduate College of Physicians and Surgeons, San Francisco, California, 1904. Licensed in California, 1904. Doctor Franklin was an affiliate member of the Santa Clara County Medical Society, a member of the California Medical Association, and a Fellow of the American Medical Association.

Haake, Charles H. G. Died at San Francisco, December 4, 1928, age 40 years. Graduate of College of Physicians and Surgeons, Columbia University, New York, 1913. Licensed in California, 1914. Doctor Haake was a member of the Shasta County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Maggs, Frederic G. Died at Stockton, November 21, 1928, age 36 years. Graduate of University of California Medical School, 1920. Licensed in California, 1920. Doctor Maggs was a member of the San Joaquin County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Williams, Fred H. Died at Selma, December 8, 1928, age 53 years. Graduate of University Medical College, Missouri, 1902. Licensed in California, 1903. Doctor Williams was a member of the Fresno County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARIES

Samuel P. Tuggle

1856-1927

Dr. Samuel P. Tuggle, a member of the San Joaquin County Medical Society since 1910 and a member of the staff of the Stockton State Hospital, died on December 18, 1927.

Doctor Tuggle was born in Tennessee, graduated from the University of California in 1889 and was for some years in the anatomical department as quiz master. He did a general practice in San Francisco for many years, and for two years was superintendent of the Home of Inebriates, situated in north San Francisco. This work in an institute for alcoholics and drug habitués as well as for the treatment of insane patients pending their commitment to one of the state hospitals, focussed his interest on the treatment of mental cases. In 1910 he received an appointment to the Stockton State Hospital staff.

Several years before his death he suffered a stroke of paralysis, but after a period of months was able to resume his activities although still somewhat handicapped. His wonderfully fine spirit throughout this illness was a splendid example to all with whom he came in contact. Doctor Tuggle reflected his Southern ancestry in the hospitality of his home; his greatest delight was in gathering his friends and confrères about his fireside. To those who shared this friendship and to his associates on the State Hospital staff his genial presence has been particularly missed.

Doctor Tuggle is survived by his wife and his daughter, Julia, to whom the members of this society extend their most sincere sympathy.

Charles Elmer Stagner

1883-1928

Dr. Charles Elmer Stagner was born and raised in Wheatland, California, attended school there, and later graduated from the Marysville high school. He received his premedical education at Stanford University where he was a member of the Kappa Alpha Fraternity. He graduated from the medical depart-

ment of Cooper Medical College in 1912 at which institution he was affiliated with the Omega Upsilon Phi Medical Fraternity. Doctor Stagner interned at the Sacramento County Hospital and the San Joaquin General Hospital, following which services he practiced for some years in Gustine, Merced County. For the last several years before his death he was treated at Tracy, San Joaquin County, and for a period was again at the San Joaquin General Hospital where he assumed charge during the absence of Doctor Friedberger in Europe.

Doctor Stagner's unfailing good nature and keen sense of humor made for him many friends, who greatly regretted his death from pneumonia at Dameron Hospital, Stockton, on January 28, 1928.

Doctor Stagner is survived by his wife and child.

Frederic George Maggs

1892-1928

Dr. Frederic George Maggs was born at Baden, San Mateo County, August 1, 1892. He was a great lover of all outdoor sports and played on the high school football team as well as serving as the president of the student body. He received his medical training in the University of California and graduated from that institution in 1920. During the years of his medical education he held the State of California Scholarship in 1915-16, Carrie M. Jones Scholarship in 1916-17, William Watt Kerr Scholarship in 1917-18, again was awarded the Kerr Scholarship in 1918-19. These awards are ample evidence of his devotion to his work and his high scholastic record. During the fall of 1918 he served for a while with the Student Army Training Corps. He was a member of the Nu Sigma Nu Medical Fraternity. Doctor Maggs interned at the University of California Hospital at San Francisco in 1919-20 and practiced at Riverdale, Fresno County, and in Watsonville before coming to Stockton.

During the comparatively short number of years Doctor Maggs had been in our midst he had won for himself not only a splendid following among his patients, but an enviable standing with his fellow practitioners. His professional ethics were above question, as by nature he was absolutely honest and at all times and under all circumstances a thorough gentleman.

His untimely death at the age of thirty-six, the result of pneumonia, on November 21, 1928, caused universal regret among the citizens of Stockton and was particularly deplored by his fellow members of the San Joaquin County Medical Society.

Doctor Maggs was married on February 21, 1921, in San Francisco to Ethel Reeve Eckstrom and has three charming little daughters, Eleanor, Marjory, and Dorothy. To Doctor Maggs's family the members of this society convey their most sincere sympathy.

NEVADA STATE MEDICAL ASSOCIATION

R. R. CRAIG.....President
W. A. SHAW.....President-Elect
H. A. PARADIS.....First Vice-President
R. P. ROANTREE.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

Résumé of meetings of the Washoe County Medical Society for the year 1928.

This medical society holds monthly meetings on the second Tuesday of each week at the Sciots Club at Reno. During July and August no meetings are held, and the September meeting is usually held to arrange for the annual state meeting which convenes during that month.

With few exceptions the scientific program has been by outside talent, mostly from the medical centers in San Francisco. The meetings are quite well attended and the local coterie has evinced keen interest in the papers presented. Lectures are illustrated by means of lantern slides, cinema reels, diagrams, charts, etc. Discussion is usually spirited and interesting.

The following outside speakers have addressed the society during the past year:

Doctor Newman of San Francisco, on "Quinidin in Various Heart Irregularities." The lecture was illustrated with lantern slides, showing both the animal and the human heart in normal and pathological conditions. The views exhibited of hearts with broken compensation shown by the fluoroscope were highly instructive. The therapy of quinidin, when to medically exhibit it and when to withhold it, was dwelt upon and the dangers of the drug pointed out as well as its benefits.

Mrs. John O. McReynolds of Texas, wife of Doctor McReynolds, was the guest of the society and spoke in the interest of the Woman's Medical Auxiliary Society. The Nevada State Medical Society had at a former meeting endorsed this movement. Mrs. McReynolds outlined the purposes of the organization. We are all of the opinion that if this organization becomes active along the lines indicated by Mrs. McReynolds it will be of worth while benefit to every physician.

Dr. Sterling Bunnell of San Francisco talked on the technical subject of "Reconstruction of the Hand." This most highly interesting talk was illustrated with numerous lantern slides drawn from a great abundance of clinical material. Doctor Bunnell is to be congratulated upon the splendid results obtained in this highly technical and difficult field of surgery, so little understood by the majority of the profession.

Dr. Petre Trisca of Budapest, Hungary, was an interesting visitor. The doctor was on a tour of inspection of the American medical profession, and talked on the subject of "Medical Fraternity." We gathered from his talk that, in his opinion, the profession of this country had not developed the fine points of medical etiquette that obtain in Europe. The doctor said his purpose in visiting the United States was to gather material for his forthcoming book on the subject of "Medical Fraternity." While we give Doctor Trisca credit for holding a high medical ideal, we hardly feel that an estimate of the American medical profession can be made correctly by anyone not conversant with American life and customs. One can hardly interpret a people without a correct knowledge of their language, for, as has been well said, language is a map of the mind. Without that knowledge no analysis of people can be made which will come anywhere near a correct interpretation of their ideals.

Two sessions of the year's meetings were given over to studying reels furnished by the Kodakoscope people of San Francisco. It is a pity that so few of these valuable forms of instruction are as yet out for general instruction. With the assistance of such object methods of teaching, attendance at a medical meeting would be a delight and pleasure. We should like to see more movies of this kind.

The society was addressed by three members of the local profession. Dr. Arthur Grover, pathologist to the St. Mary's Hospital, gave an interesting talk on "Blood Chemistry." This advance in medicine is now so valuable an aid that it well behooves every physician to be able to interpret the significance of his clinical chart when returned by the pathologist. If it read, as did one of ours very recently, "Blood urea, 80 mg. per cent; creatinin, 8:8 per cent," then we should know that the "time of his departure is at hand."

Judge George A. Bartlett, eminent jurist of the Nevada bar, addressed the society on the "Medical-Legal Relation of Physician and Patient." Possibly

an old subject, yet one that would save serious vexation if every physician knew more of it. As Burns puts it in his verse, "To a Louse":

"O wad some Power the giftie gie us
To see oursels as ithers see us.
It wad frae mony a blunder free us,
An' foolish notion."

Doctor Bath gave a talk on the Mayo Clinic, his first visit being twenty years ago and his fifth visit last winter. The talk was upon the differences of technique and extended lines of work in the clinic. Doctor Bath stated that, so far as he could see, no better surgery was done today than was performed at his first visit. The surgery of twenty years ago was perfect and that was about all one could expect. The enormous variety of clinical material and the uniform courtesy of staff and attendants toward visiting physicians, the always courteous response to an inquiry, makes this Mecca of medicine a valuable resort for study and observation.

The conclusion of the year's work was the annual meeting, celebrated with a banquet given to the society by the retiring and genial president, Doctor Caples. This feature has heightened the good fellowship, and we are sure that it will stimulate an interest in carrying on the work of the profession. We believe that there is no other feature better than the common fellowship over the festal board. Let them be longer and later into the wee hours of the morning. The more we have of them the smaller will appear the beam in our brother's eye, for the mote in ours will then disappear. The address of the evening was given by Dr. Horace C. Pitkin of San Francisco. He spoke on the "Rôle of Postural Training in Medicine." This splendid talk was illustrated with lantern slides, and showed conclusively that this line of orthopedic surgery is to most of us an unexplored problem, but one that if properly worked will solve many of the past difficulties of "functional" troubles—an ingenious phraseology that serves to satisfy the patient, but still leaves the physician groping in the dark.

Election of the following officers concluded the year's work: For president, Dr. J. La Rue Robinson; vice-president, Dr. A. L. Stadtherr; secretary-treasurer, Dr. Thomas W. Bath.

THOMAS W. BATH, *Secretary.*

NEVADA NEWS

The following were elected officers for 1929 at the annual meeting held at Bower's Mansion, September 21 and 22: R. R. Craig, Tonopah, president; W. A. Shaw, Elko, president-elect; H. A. Paradis, Sparks, first vice-president; R. P. Roantree, Elko, second vice-president; Horace J. Brown, Reno, secretary-treasurer; D. A. Turner, Reno, trustee. Delegate to American Medical Association, Horace J. Brown, Reno. Alternate, R. R. Craig, Tonopah.

* * *

It was voted at the annual meeting to raise the annual dues to $10; this to include subscription to CALIFORNIA AND WESTERN MEDICINE, but not to include county society dues.

* * *

The White Pine Medical Society was recently organized at Ely, and elected the following officers: G. W. Green, Ely, president; O. Hovenden, McGill, first vice-president; J. C. Agagee, Ely, second vice-president; E. B. Muir, East Ely, secretary; W. H. Frolich, East Ely, treasurer.

Their regular meetings will be held the first Thursday of each month.

* * *

The Washoe County Medical Society elected officers for 1929 as follows: J. L. Robinson, Reno, president; A. L. Stadtherr, Reno, vice-president; T. W. Bath, Reno, secretary-treasurer.

* * *

We regret to report the death on December 8 of Dr. D. H. Pettingell of Midas, who was one of the oldest practitioners of the state and one of our highly esteemed members. Doctor Pettingell died of post-influenzal pneumonia.

* * *

J. R. Cunningham, Tonopah, had the misfortune to fall and break his right leg in November, and is now confined at the Letterman General Hospital in San Francisco.

* * *

R. A. Bowdle, East Ely, has recently returned from two months spent in the East visiting various clinics.

* * *

Examinations were held by the Nevada State Board of Medical Examiners, November 5, 6, and 7. Five took the examinations of which four passed. Following were the successful candidates: T. W. Koldeway, C. J. Johnson, R. R. Craig, and Fleet Harrison.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the Medical Arts Building, Salt Lake City, November 26.

The meeting was called to order by the president, William F. Beer, at 8:05 p. m. Forty-one members and two visitors were present. The minutes of the meeting of October 22 and November 12 were read and accepted without correction.

No clinical cases were presented.

The first paper of the evening was read by W. G. Schulte on "Nonspecific Prostatitis." He discussed the embryology, anatomy, growth, and atrophy, and pathology of the prostate gland; symptoms, diagnosis, and treatment of the disease.

This interesting paper was discussed by F. A. Goeltz, G. N. Curtis, L. N. Ossman, and E. M. Neher.

The next paper was by R. O. Porter on the "Therapeutics and Medico-Legal Aspect of Alcohol." He discussed the pharmacology and toxicology of the drug, its absorption and elimination. He demonstrated an instrument which he had devised for determining the amount of alcohol in the expired air. Discussion followed by Harold Van Colt, E. M. Neher, G. H. Pace, F. A. Goeltz, F. H. Ruley, William F. Beer, Doctor Clayburg, and George W. Middleton.

J. Z. Brown read an instructive paper on the "Doctor and Social Service," in which he brought out many points of timely interest to the profession. His paper was discussed by H. S. Scott, G. W. Middleton, J. P. Kerby, M. M. Critchlow, C. M. Benedict, William F. Beer, and W. T. Ward, who moved that the chair appoint a committee of three to study the methods of the next county and city physician and attempt to aid him in the appointment of assistants. Discussion by William F. Beer followed.

Application for membership, signed by Doctors Sexton and Woodbury, were read by the secretary.

Adjournment at 10:50 p. m.

* * *

The annual meeting of the Salt Lake County Medical Society was held in the Medical Arts Building, Salt Lake City, on Monday, December 10. The meeting was called to order at 8:10 p. m. by President William F. Beer. Fifty-three members and one visitor were present.

The minutes of the previous meetings were read and accepted without correction.

Marshall C. Sexton was elected to membership.

A letter from the Hourly Nursing Service was read. This was discussed by W. R. Calderwood and John

Z. Brown, who moved that the letter be acknowledged and filed. Seconded and carried.

Committee reports followed. The secretary read the committee's report of the smoke nuisance. W. R. Calderwood moved that it be sent to the Chamber of Commerce. Seconded and carried.

President Beer gave a short farewell address.

Reports by the Secretary, M. M. Critchlow, and the treasurer, J. E. Jack, followed. The Community Clinic committee's report was read by W. L. Rich.

The report of the Committee on Public Health and Legislation was read by M. M. Nielson. This was discussed by W. R. Calderwood, who moved that the chair appoint a committee to draft a resolution in support of legislation for a school for the feeble-minded. Seconded and carried.

Reports of the Medico-Legal Committee read by J. P. Kerby, the Necrology Committee read by the secretary, in the absence of J. U. Giesy, the Library Committee read by W. R. Tyndale, were then presented.

Verbal reports of the Boy Scouts Committee by L. J. Paul and of the Public Lectures Committee by Ralph Pendleton followed.

A report of the Fee Schedule Committee was given by J. P. Kerby. W. R. Calderwood moved that the committee be continued and report later. This was seconded, but not put to a vote, as the chair reappointed the same committee, over W. R. Calderwood's objection.

The report of the Community Clinic Executive Committee was given by C. M. Benedict, who requested two weeks' more time. The same committee was reappointed by the chair.

The following officers were unanimously elected for 1929: C. M. Benedict, president; M. M. Nielson, vice-president; B. E. Bonar, secretary; Clark Young, treasurer; W. F. Beer, censor.

F. J. Curtis reported for the Delinquent Boy Committee.

O. J. LaBarge moved that the outgoing officers be extended a vote of thanks. Seconded and carried.

Adjournment at 9:40 p. m., after which an informal smoker was held.

M. M. Critchlow, *Secretary.*

WEBER COUNTY

The regular meeting of the Weber County Medical Society was held November 24 at the Hotel Bigelow, President W. R. Brown presiding. The usual dinner preceded the meeting, especially good, as Dr. V. L. Ward furnished a venison steak for each. Forty-one members were present.

The first order of business for the evening was election of officers for the year 1929. The following were elected: A. H. Aland, president, nominated by Ezra I. Rich; E. P. Mills, vice-president, nominated by E. R. Dumke; George M. Fister, secretary, nominated by H. C. Stranquist; and S. W. Badcon, treasurer, nominated by E. P. Mills.

Delegates to state medical society: W. H. Budge, A. A. Robinson, A. H. Aland, R. L. Draper, and G. A. Dickson.

Alternates to state medical society: W. H. Whalen, M. J. Seidner, Frank K. Bartlett, L. S. Merrill, and E. R. Dumke.

The program for the meeting was a report by Dr. Ezra I. Rich and Dr. E. R. Dumke on the recent meetings of the American College of Surgery and Interstate Postgraduate Assembly.

President W. R. Brown appointed Doctors V. L. Ward, J. D. Harding, and W. J. Wright to audit the treasurer's accounts for 1928. Doctors A. H. Aland, Junior Rich, and N. H. Savage were appointed to arrange the program for the annual meeting and installation of officers in December.

Dr. W. R. Brown moved that the members of the society send a message of sympathy to Mrs. S. L. Brick at the death of her husband, Dr. S. L. Brick, November 13. Dr. Brick had practiced in Ogden for forty-two years.

George M. Fister, *Secretary.*

UTAH NEWS

The Holy Cross Hospital Clinical Association held its regular meeting at the hospital the evening of November 18.

The following program was presented:

Ruptured Gastric Ulcer—Dr. Claude Shields.

Fracture of the Knee—Dr. T. W. Stevenson.

Empyema—Doctors Hummer and Johnson.

Gall stones in a Man of Seventy-eight—Dr. William Ward.

* * *

The Central Utah Medical Society is welcomed into the sisterhood of the Utah Medical Association.

This latest member of the state family was organized the evening of November 10, with the councilors of the state association officiating at its birth. Eight charter members comprise the present personnel, with Dr. T. R. Gledhill as president and Dr. Asa Dewey as secretary and treasurer. Meetings are the first Monday of each month. After organization short talks were given by the members of the state association and the new society. We wish at this time to invite Doctor Dewey, as secretary, to send in reports of meetings to the office of the editor for Utah, 701 Medical Arts Building, Salt Lake City, not later than the tenth of each month.

* * *

The Salt Lake Academy continue their weekly Thursday meetings in the rooms of the Intermountain Clinic, Deseret Bank Building, Salt Lake City. These programs are in the nature of reviews and discussions of pertinent medical and surgical problems. Programs are furnished in rotation by the membership.

The last program covered: a discussion of the value of spinal anesthesia in the treatment of peritonitic ileus; a consideration of the relation between apical abscess of teeth and the general symptomatology; and a résumé of the literature on renal glycosuria.

* * *

Instruction for Medical Reserve Officers.—Classes of instruction, under the direction of a competent officer, are now being held twice monthly for all Medical Reserve Officers in the headquarters of the Third Reserve Area, 104th Division O. R., Vermont Building, Salt Lake City. These classes are designed to prove of great benefit to medical officers of the Reserve, and those not now availing themselves of the privilege are urged to arrange to attend during the remainder of the winter and spring course.

University of California Alumnus Gives Twenty-five Thousand Dollars to Science.—As the result of a gift of $25,000 a year for the next five years from an alumnus, Dudley Cates of the class of 1911, the University of California will this year open an intensive study of neurological survey with special reference to the treatment of brain tumors, according to announcement by the regents.

Cates is a resident of Winnetka, Illinois, and holds the position of vice-president of Marsh & McLennan Insurance Company. The research work will be carried on under the direction of Dr. H. C. Naffziger, clinical professor of surgery at the University Medical School in San Francisco.

Doctor Naffziger states that the donor, although most anxious to see improvement of technique in the removal of brain tumors, which are at present often fatal, puts no limitation upon the surgical research which may be done under his sponsorship in the field of neurology, or the nervous system.—*U. C. Clip Sheet.*

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Readers' Forum; California State Board of Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

Foreword.—In one of the conferences held by officers of the California Medical Association to consider the proposed "Vocational Standards Department,"* which it is proposed to bring into existence by act of the legislature which will convene in January, 1929, the manuscript copy of an article by H. C. Christensen, former secretary of National Association of Boards of Pharmacy, came to light.

This article discussed in some detail the experience of the state of Illinois with a similar plan. That experience was so deplorable that the licensure certificates in medicine issued by Illinois from 1919-22 are refused recognition by the California Board of Medical Examiners, and by a considerable number of other examining boards in the Union.

This paper by Mr. Christensen presents so excellent an exposition of some of the questions at issue, and which now face the California professions of medicine, dentistry, and pharmacy, that the Executive Committee of the California Medical Association has ordered its publication in CALIFORNIA AND WESTERN MEDICINE so that the members of the California Medical Association might better understand the situation which confronts them. The fact that the paper was written and read to the California State Pharmaceutical Association in 1922 does not detract, but rather adds to its value as a somewhat impersonal presentation and comment on the situation confronting California at the time of this writing, in the year 1928.

Appended to the paper, and as shedding some sidelights on how justice worked out in the effort to clean house in Illinois, are excerpts taken from some of the Chicago newspapers of that time.

It is hoped that the publication of this material will inspire each county unit of the California Medical Association to take up a prompt study of this important problem and the issues which are at stake. The officers of the California Medical Association, who on behalf of the Association must act in its name, desire to know the viewpoint of the component county societies, and to have the full and enthusiastic support of every member in whatever procedure is decided upon as being best adapted for the protection of the public and of the medical profession.

PROBLEMS IN CONSOLIDATION OF PROFESSIONAL BOARDS†

By H. C. CHRISTENSEN

Secretary of the National Association of Boards of Pharmacy

In accepting your kind invitation to address the California Pharmaceutical Association at this meeting of the year 1922, I find that one of the embarrassments of meeting the same group frequently, is one's inability to present a new subject, or an old subject in a new light. My subject today, while not a new one, is at least a new phase of an old one. One of significant interest to present and future pharmacy as well as to the public which pharmacy serves.

How So-Called Consolidated Boards Came Into Existence

I want to discuss at this time the question of consolidation of state examining boards—the tendency toward which is sweeping over the country like the craze for jazz music, bobbed hair, and Eskimo pie.

Several states have enacted laws under which consolidation of boards is now in force—many more seriously contemplate it. Inasmuch as Illinois blazed the way in this form of legislation, it may appear paradoxical that I should be here raising the question of its advisability. But if Illinois was the first to enact an administrative code consolidating the examining boards, so Illinois, it seems, has been the first to demonstrate the fundamental weaknesses of the plan.

The Illinois Origin of the Departmental System

The enactment of the administrative code which made consolidation possible in Illinois came about through a reform movement sponsored by former Governor Lowden during his campaign for nomination for that high office. After his election, the law proposing consolidation became an administration measure. Its advocates claimed that by grouping all examining boards in a department or bureau under one head, designated as the "director," many clerical and executive matters could be handled more economically and expeditiously. It became certain that some sort of a consolidation law would be passed by the legislature. Pharmacists therefore confined their efforts to having certain outstanding objectionable features eliminated from the proposed law as originally submitted. In this respect we were partially successful at least. After the law was enacted and consolidation put into force, we withheld judgment and gave our support and coöperation in an effort to make the new plan a success. Under Governor Lowden, with Francis W. Shepardson, a broad-gauge, high-class educator as director, and F. C. Dodds, efficient and honest, as superintendent of registration, the work of the department, including examinations, was conducted in a creditable manner to the fullest extent possible under such a plan.

When the Illinois System Broke Down

With the change of political administration in 1921 came also changes in the personnel of the men in charge, which brought to the surface the weaknesses of consolidation.

Through the lay and pharmaceutical press you have been told something of the exposé in Illinois. I shrink from holding a postmortem over my native state—a state which has had a glorious history and which has been in the van of many progressive movements. It has always been active in matters pharmaceutical, and I think you will concede has contributed its share to the advancement of our profession.

But to get to the point I want to discuss I must sketch, very superficially and very hastily, what occurred.

First, to the credit of pharmacy and pharmacists, let me say that the Pharmacy Examiners themselves in the state of Illinois were not accused of being responsible for, or of knowingly aiding in the dis-

* See editorial on page 414 of the December 1928 issue of this journal. See also page 50 in this issue.

† Address delivered before meeting of the California State Pharmaceutical Association at Catalina Island, May 23, 24, and 25, 1922.

graceful proceedings, although they had begun to suspect that all was not well.

Medical Board and Other Irregularities Under the Departmental System

It has developed that the pharmacy examinations had but a minor part in the plot; medicine, nursing, veterinary medicine, dentistry, chiropractic, osteopathy, etc., etc., were all involved—although the "big killings" appear to have been made in medicine.

The irregularities consisted, so it appears, in supplying advance copies of the state board questions to individuals conducting certain "quiz" schools who either sold them to their students direct, or "fed" them to the students in short review courses of a week or ten days preceding examination. The fees charged ranged from $200 to $500. Lists of names of men who had failed in examination were supplied to these schools and a high-pressure advertising system was employed in getting them to come in.

In addition, persons who were not eligible to take the examination because of lack of experience, college graduation, etc., had their admission credits "fixed up" so they could take examination, the prices paid ranging from $500 to $2500 for the privilege of taking the medical examination—this in addition to the fee paid (usually $200) for entrance to the quiz course.

Cases are also reported where candidates, after receiving notice of failure in examination, would be visited by a "fixer" and if the sum demanded was paid, a license would come in due time, but the names of such persons would not be included in the list of successful candidates issued by the Department of Registration and Education for publication.

The central figure in the scandal is ———, director of the Department of Registration and Education, who had surrounded himself with relatives and confidants, both inside and outside of his office, and who evidently thought himself sufficiently entrenched so that it would be impossible to implicate him. However, indictments have been secured against Mr. ———, his son-in-law and several others, and date of his trial has been fixed for June 5.

One naturally seeks the underlying reason why such a thing could occur in any state, and many explanations are offered. The man on the street says, "Rotten politics." The Democrats say, "Republican administration." The pacificists—and some others—say, "Aftermath of the war." Others accuse Mr. Volstead, and Lucy Page Gaston probably blames cigarettes.

One thing is certain, Illinois has struck a piece of bad road, and it is a question how long before we can get out of the mire.

Reasons Why Professional Boards Should Not Be Placed in a Vocational Standards Department

I think we might begin our argument against consolidation with this premise:

First: The members of any profession are more responsible for the condition of that profession at any time than the people of the commonwealth outside of that profession.

Second: Once you undermine or remove the responsibility from the members of the particular profession, the standing of that profession will deteriorate.

To be a little more specific: I maintain that the pharmacists of a state are more responsible for the condition of pharmacy in that state than are the other citizens, and that they owe it to citizens at large to protect all citizens from incompetent pharmacists.

Still further on this point. With the consolidation of boards under one head, the various professions lose interest. The pharmacists feel that the responsibility for their profession has been taken out of their hands and put into the hands of a "trust"—a one-man power. Physicians, dentists, nurses, etc., the same. Somehow they do not have the pride in nor feel the same responsibility for the standards and ethics of their respective professions as they did when it was exclusively in their own hands, with one of their own number at the head.

What Happens Under the Consolidation Plan

If such a condition—consolidation—is brought about, whereby pharmacists of a state lose interest in pharmaceutical matters, from that day on pharmacy will deteriorate and the public, because of this loss of control, will not receive the protection to which they are entitled, and your business, professional and ethical standards will retrograde. Under the consolidation plan the professions are powerless to preserve their integrity if the powers that be will otherwise. We proved this in Illinois when the Board of Pharmacy Examiners, attempting to maintain the honesty of our examinations and registrations, found themselves powerless to do so, and withdrew for the purpose of fighting from the outside what could not be prevented from within.

I maintain that the pharmacists themselves are responsible for the type of pharmacists we have today, tomorrow and twenty-five years hence—that your influence upon your schools, boards, associations, etc., absolutely determines what kind of pharmacists the state enjoys—or endures. What is true of pharmacy, is true of medicine, dentistry, nursing, etc.

Not only that, but the passage of every state pharmacy law designed for the protection of the public as well as laws governing the progress of the profession, has been secured through the efforts of the pharmacists themselves.

If by legislative enactment you remove or lessen the responsibilities of members of a profession for its standards, you remove one of the main props which support this standard and a gradual lowering will result, with resultant bad effects to lay citizens and to the professions involved.

I contend that the consolidation of boards under one head has, and will continue to alienate the direct personal interest and accountability which pharmacists have held for their profession. This also applies to physicians and dentists. Under such a plan, pharmacists feel that the matter has been taken out of their hands; that they are powerless to help or hinder; that they cannot be held liable for what happens.

Centralization of Power Into Lay Hands

These consolidation laws, so far as I know, all place the administration of the law in the hands of a nonprofessional man. I mean a man not belonging to any of the professions covered by the law. Usually he is a politician, not schooled in nor appreciating the ethics, standards, or relations of the various professions to the public. In other words, he is unable to appreciate the pharmacists', dentists' or physicians' viewpoint, which, after all, is important in order to accomplish progress for these various professions, as well as to properly safeguard the public, by protecting the public from incompetent or off-color practitioners in these professions.

Principle of "Outside Control" Is Wrong

Some of you may wonder, if a nonprofessional man is so apt to prove unsatisfactory in the position, why a member of one of the professions cannot be placed at the head of the department. Why not under the Board of Health with a physician at the head, or if a separate department of registration, a pharmacist, physician or dentist at the head? The reasons are plain. None of these propositions is sound in principle and can therefore *not* succeed. If you place a man of one profession—let us say a physician—over groups of various professions—pharmacy, dentistry, nursing, veterinarians, "other practitioners," etc.—you have a clash of principles and interest at once. Old human nature must not be forgotten even in legislative matters. Do not misconstrue my meaning. It would be just as bad to place a pharmacist, dentist, veterinarian, or nurse at the head of such a department. The principle is wrong, that is all. No matter how broadminded or able this man might be, his sympathy would just naturally be with the men of his own

profession. Don't you see, then, that it would automatically—human nature again— alienate the sympathy and perhaps the support of members of the other professions? Cannot you just hear irate pharmacists, dentists, etc., who take umbrage at the chief, say, "What does a physician know about dentistry? What does he know about pharmacy? What does he know about any profession but his own?"

A Department Director Does Not Add Strength

I have looked at this problem from every angle I could conceive, and so far as I can see at this time, the basic fault of consolidation of examining boards lies in the placing of one man at the head. Whether the head of a department or bureau of registration happens to be a professional man or a nonprofessional man, makes little or no difference. Things may go along fairly well for a time, but the prevailing custom of changing heads of departments or bureaus, when political rule changes in a state, makes it impossible to guard against the probability, sooner or later, of a condition such as exists in Illinois at this time.

We have to look at the fundamental principles underlying a proposition. It is a function of the state, a duty to the people of the commonwealth, to see to it that incompetents are not permitted to practice any of the professions. It is also a duty of the state to see to it that the duly qualified are not prohibited from practicing. It is a further duty of the state, after having enacted proper laws, to influence, through its examinations, the standards of education so that there will be a steady rise in standards of licensing men in all the professions, to the end that increasingly good service may be rendered to the public through better trained practitioners.

Kind of Personnel Which Should Be On Professional Boards

To accomplish these aims, you must have on your examining boards men of foresight, education and ability. Men who grasp the essentials of the problem. You must, in the first place, have conditions such that men of the proper caliber will accept such appointments as examiners. Secondly, conditions of work must be such that those men will give the best there is in them. Under the old order—separate boards system—the state pharmaceutical association in the various states, with few exceptions, by vote recommends to the Governor the names of several pharmacists as being qualified and eligible for appointment as members of the Board of Pharmacy. While the Governor may—and sometimes does—go outside of this list for his appointees, nevertheless the pharmacists of the state have an opportunity to sift out and offer for the Governor's selection, men whom they regard as qualified for the responsibilities of examiners. These appointees are responsible to the Governor only, and are usually appointed for a term of years, and replaced only for marked cause or on expiration of the term for which they were appointed. The virtual head of the board—either president or secretary—is a pharmacist of education and experience, who knows the standards of his profession, who has a jealous regard for its protection and that of the public as well, and for the good name of the pharmacist in general. A somewhat similar system was in vogue some years ago in several states, in relation to medical boards. California formerly used such a plan.

In Consolidation Plan, the Governor Appoints the Director

Under the consolidation plan the Governor appoints a "director" who is "boss" of the department. This director appoints the examiners. In Illinois, Mr. ———, director of the Department of Registration and Education under the present administration, who was recently indicted on charges of illegal trafficking in professional licenses, places a construction on the law to suit his own liking and convenience, and appoints examiners for one examination at a time! The uncertainty of continuing as an examiner under such a plan does not make for efficiency, to say the least.

Results Which Could Happen With a Poor Department Director

If you get as director of your consolidated department a man whose duties are beyond his capacities, and the temptations of his position beyond his moral strength, who is subject to the pressure of personal or political interests, who uses his office to further his personal or political ends, you can readily see what this will lead to—you will have chaos. With the changes in the political tide of any state, you are, I believe, bound in time to draw such a man.

Results With a Poor Separate Board Chairman

You may think that you might get such as a member or head of a board, under a separate boards plan, or under any system. That is quite true, but if his sphere of influence is limited to any one board or profession, his possibilities for harm are limited to one profession, and even then, he is likely or almost certain to be held in check by the decent members of the board. Furthermore, the possibilities for loot are not so great and the temptation thereby lessened. I am talking about pharmacy, but I have in mind also the other professions, such as medicine or dentistry, for which licenses are granted.

There have no doubt been sporadic cases of irregularities in the issuing of certificates in the various professions in different states. Influences of one kind or another, and mayhap the crossing of the palm, have been instrumental in securing certificates which the holder could not obtain on a straight-out examination. But these are rare cases and in no way compare to the wholesale business Illinois has experienced, which, fortunately were of short duration—no thanks to consolidation.

No Real Money Economy in the Consolidated Board Plan

I am aware that in theory this consolidation plan is assumed to effect economies of administration. But in Illinois at least, these economies have yet to be proven. The fees paid by pharmacists for renewal, certificates, examinations, prosecutions, etc., in most states, defray all expenses of administering the pharmacy laws. The taxpayer, therefore, with few exceptions, is not called upon to contribute to the support of pharmacy, or of boards, such as those of medicine and dentistry.

How to Prevent Deplorable Conditions of Consolidated Boards

The preventive for the conditions I have described can, it seems to me, be put in two simple sentences. First: Those states which still have individual boards should stick to them. Second: Those states which have the consolidation plans should repeal the laws and go back to the old separate boards plan or a modification of it.

To accomplish this you must arouse your members to the true conditions. Physicians, dentists, and pharmacists who love their professions will fight for decent standards if they understand the issues at stake.

Not only must pharmacists exert themselves, but you must, if possible, work with the other professions, particularly those of medicine and dentistry.

There seems to be a tendency on the part of medical men to consider themselves apart from this question of examination. I would be the last man in pharmacy to criticize our physician brothers, the men who write our prescriptions. But I cannot agree that it is for the welfare of either public or physicians for

the latter to assume an attitude of indifference toward the administration of medical laws or the licensing of physicians. What chance does the public have in protecting itself against bad laws or vicious systems relating to any of the professions or the administration of same unless the professions themselves take a hand.

However, I do not believe this apathy to be general, and I want to repeat that we need the coöperation of all the professional men in repealing untoward laws or retaining those we have which are good. The pharmacists alone cannot do it. Suppose in this state the pharmacists want individual boards and the other professions are indifferent in the matter, but the politicians want consolidation. Well, under those conditions you will get consolidation. So I say, you must secure the coöperation of the other professions, such as medicine and dentistry.

Interests of Medicine, Dentistry, and Pharmacy Are One and the Same in These Issues

In a broad sense, our interests are inseparably linked, both as regards the progress of our respective professions and our mutual responsibilities to the public. Pharmacy has taken the initiative in securing legislation beneficial to, and in opposing legislation detrimental to the public and the profession. Where we merge with other professions, as we do when the consolidation of boards is an issue, I think we must take the initiative in securing the coöperation of the other professions involved. Therefore I implore you to leave no stone unturned to secure the assistance of your physicians and your dentists so that through their state organizations they may be aroused to the situation and made to see that their own welfare demands that they take aggressive action. Do this individually, and also do it as an association. Campaign for it, electioneer for it, fight for it! In that way you will get results. The protection of the public and the welfare and dignity of your profession are worthy of every effort you put forth.

In Conclusion

In closing, it may strike you as a bit incongruous that I should come halfway across a continent to tell you what a vile state I come from.

I come to a state which I think approves the Oriental maxim, "See no evil, hear no evil, speak no evil." No Californian, I believe, would admit there is anything wrong with the Golden State. I may add that the rest of the world inclines to agree with him.

However, just as it is wise to advertise good, there are times when it is wise to advertise the evil that exists, and if in what I have said, Illinois appears as one of the black spots on the map, I beg to assure you that it is a recent thing, and that the forces for right within the state hope to quickly change it.

I review the conditions in Illinois with a good deal of embarrassment, but I do it that other states may be warned—that our experience may not be repeated elsewhere.

"An Ounce of Prevention Is Worth a Pound of Cure"

In the matters of any profession, state lines should be abolished, and what occurs in Illinois is as important to you as though it happened in California. It is your duty to use your influence to maintain decency in our profession from coast to coast—from the Great Lakes to the Gulf, and to unite with affiliated professions toward the same end, as regards their own responsibilities.

I thank you for your courteous attention, and know from the temper of the people of California that where right is at issue you will not be found wanting.

PRESS QUOTATION EXCERPTS, DEALING WITH TOPICS DISCUSSED IN ARTICLE ON "CONSOLIDATION OF PROFESSIONAL BOARDS" BY H. C. CHRISTENSEN

The following excerpts are from articles in issues of the Chicago *Daily Tribune* of the year 1922, and explain themselves. The headings given are the captions to the articles from which the excerpts have been taken:

Ring of "Fixers" Turns "Quacks" Out on Public—Traffic in Permits to Practice Bared—By Parke Brown.—"Under the wing of one of Governor Len Small's most important departments, a ring of 'fixers' is trafficking in physicians' licenses, pharmacists' certificates, and similar permits issued by the state of Illinois.

"It has been established that this ring has fixed prices for the following:

"For bringing about the issuance of a license to practice medicine and surgery, although the applicant has not the collegiate training required by law.

"For obtaining osteopaths' or chiropractors' licenses after a 'cramming' course of from two to six weeks.

"For obtaining pharmacists' licenses for those who know that it is impossible for them to pass an examination.

"For obtaining veterinarians' licenses for men who have already failed in examinations.

"And it is said that the gang's operations have extended to the issuance of other licenses that are under state control."—Excerpt from the *Chicago Daily Tribune* of Monday, March 20, 1922.

* * *

Eight Thousand Five Hundred Fifty Dollar Drafts Paid for State Licenses Found—All Made Out to Wife of Director Miller.—"Following up the evidence of graft in the issuance of physicians' and druggists' licenses by Director W. H. H. Miller, a member of Governor Small's cabinet, State's Attorney Crowe yesterday obtained documentary proof in support of the oral testimony.

"In one bank Samuel M. Hamilton, assistant state's attorney in charge of the investigation, found cancelled drafts amounting to $8550, which was the combined purchase price of only one batch of the state permits to practice medicine and pharmacy which have been bartered during the last six months. These payments ranged from $200 for a pharmacist's certificate, to $2500 for a physician and surgeon's license.

Payable to Wife.—"But scarcely less sensational than this was the discovery that the drafts—instead of being made out to Director Miller—were made out to 'Cloah M. Miller,' his wife. Nearly all of the $8550 was sent her during the month of March and the entire sum since January 1 of this year.

"But this sum is said to be only a small part of the total that is being traced as payments for licenses issued in violation of the law. This batch of cases is a part of those known to Dr. Samuel Fomon, who testified before the grand jury that he had been collecting evidence against Miller and his ring of fixers for several months.

"And details of the cases are being collected from the applicants for state examinations who paid the money to Miller or to someone representing him.

"In addition to Doctor Fomon, another important witness before the grand jury was H. C. Christensen, secretary of the National Association of Boards of Pharmacy, who first brought the charges against Miller's department to the attention of the State's Attorney Crowe."—Excerpt from the *Chicago Daily Tribune* of Saturday, April 8, 1922.

* * *

Convict Miller as Grafter—Jurors Find Appointee of Small Guilty—Doctor Bourque Also Is Sentenced.—"William H. H. Miller (Lundin-Thompson), former

member of Governor Small's cabinet as head of the department of registration and education, was found guilty yesterday of selling physicians' and pharmacists' licenses to persons unfit to receive them, of raising examination grades, and of selling questions in advance of the state examinations.

"The jury in Judge Oscar Hebel's court, where the case was tried, placed Miller's penalty at a fine of $1000.

Doctor Bourque Fined.—"Dr. N. Odeon Bourque, head of a 'quiz' school where doubtful candidates prepared for the examinations, was fined $250. K. A. Fries, Miller's son-in-law and a former official in the department, was found not guilty.

"'A compromise verdict,' it was generally termed in the Criminal court. It was rumored that the jury had early decided on a finding of 'guilty' against Miller when they were locked up for the night last Saturday. One juror, whose name remained unknown, is said to have insisted, however, that the former director be let off without the penitentiary sentence to which he was made liable by the charge contained in his indictment.

"The maximum sentence, which was demanded by the prosecutors for the state, Samuel M. Hamilton and Milton D. Smith, was five years in the penitentiary and a fine of $2000.

Victory for People, Crowe Holds.—"Despite the leniency of the jury, a leniency I feel misplaced, Miller's conviction is a signal victory for the people," said State's Attorney Crowe on hearing of the verdict. "It will be a needed lesson, teaching the sacredness of the office to which is entrusted the duty of supervising the fitness of our physicians and druggists. What harm has been wrought by the host of incompetent men and women who, the evidence showed, have been let loose to minister to the sick will never be known."—Excerpt from the *Chicago Daily Tribune* of Monday, January 29, 1923.

NEWS

Southern California Golf Association.—Sixty members of the Southern California Medical Golf Association played and dined at the Hollywood Country Club, December 19, 1928. Winners were: Class A, Louis Felsenthal (gross); H. Schiffbauer (net). Class B, H. W. Spiers (gross); Clarence Johnson (net). Class C, A. Blatherwick (gross); Homer Walker (net).

The association was organized four years ago with the election of the following officers: William H. Kiger, president; Clarence Toland, vice-president; C. H. Weaver, secretary-treasurer. The officers elected to serve the next four years are: Clarence Toland, president; C. Hensley, vice-president; John W. Crossan, secretary-treasurer; Albert Moore, team captain; William Olds, chairman handicap; C. H. Weaver, chairman tournament; and John W. Shuman, publicity.

Ling Foundation Medal to Dr. Kress.—Press reports state that on December 20, at one of the sessions of the Los Angeles Teachers' Institute, Dr. George H. Kress was presented with a Ling Foundation Medal of the Silver Grade, for "distinguished services for the health progress of school children." Dr. Kress has been for some years chairman of the advisory eye, ear, nose and throat board of the Los Angeles School District.

Popular Medical Lectures.—The Stanford University Medical School announces the forty-seventh course, to be given at Lane Hall, north side of Sacramento Street near Webster, San Francisco, on alternate Friday evenings, eight o'clock sharp. All interested are cordially invited to attend.

Friday evening, January 4, 1929: "The Relation of the Inorganic Elements to Health and Disease"—Carl L. A. Schmidt, Ph. D.

Friday evening, January 18, 1929: "Present Aspects of X-Rays and Light in the Treatment of Disease"—W. Edward Chamberlain, M. D.

Friday evening, February 1, 1929: "The History of Spectacles"—Hans Barkan, M. D.

Friday evening, February 15, 1929: "Facts and Fancies of Rheumatism"—Leonard W. Ely, M. D.

Friday evening, March 1, 1929: "The Historical Development of Anesthesia"—Chauncey D. Leake, Ph. D.

Friday evening, March 15, 1929: "A Study of the Cost of Medical Care"—Ray Lyman Wilbur, M. D.

Southern Pacific General Hospital Meeting.—The regular monthly staff meeting of the Southern Pacific General Hospital was held on Wednesday, December 5, at 8:15 p. m. Doctor Gill, intern, presented an abstract of the interesting literature for November; essentials of the clinical and pathological data of the fatalities for November; Dr. J. Wilson Shiels, "A General Survey of Cardiology"; Dr. L. B. Crow, a roentgen demonstration of Brodie's abscess, syphilis of the lung, and fracture of the skull.

The Pottenger Sanatorium, Monrovia, celebrated on December 5, 1928, the twenty-fifth anniversary of its opening. Ex-patients and many friends of the institution had been invited to attend a reception from eleven till two o'clock. At twelve o'clock a buffet luncheon was served on the lawn.

In the evening a dinner, followed by a program, was given to former associates and assistants, members of the Trudeau Society, and other local physicians.

Meetings Board of Medical Examiners of California.
February 4 to 7, 1929—Independent Foresters Hall, 1329 South Hope Street, Los Angeles.

July 8 to 11, 1929—Independent Foresters Hall, 1329 South Hope Street, Los Angeles.

July 15 to 18, 1929—Native Sons Hall, 414-430 Mason Street, San Francisco.

October 21 to 24, 1929—State Capitol, Sacramento.

Oral examinations for reciprocity applicants will be held March 13, 1929; June 12, 1929; September 11, 1929; December 4, 1929, in room 623, State Building, San Francisco, at 10 a. m., and in room 931, Associated Realty Building, Sixth and Olive Streets, Los Angeles, at 10 a. m.

No examination given unless completed application and fee has been filed in Sacramento office at least two weeks prior to the date when applicant will appear.

No examination will be given unless applicant notifies the Sacramento office at least two weeks in advance, stating whether he will report in San Francisco or in Los Angeles.

No oral examinations will be held at regular meetings.

Oral examination required when application is based on a state certificate dated ten or more years before date of application.

Scope and Purpose of the Pan-Pacific Surgical Congress.—In August, 1929, from the 14th to 24th, approximately, the Pan-Pacific Union, through its president, the Governor of the Territory of Hawaii, is calling a Pan-Pacific Surgical Conference to meet in Honolulu. The union has held a number of successful conferences of leaders from Pacific lands on the subjects of Science, Education, the Press, Commerce, Food Conservation, Fisheries, and most recently, August, 1928, the first gathering of Pan-Pacific women was convened with a program of Health, Education, Government, Industry and the Professions, and Social Service.

Following precedent, the Secretary of the Interior of the United States, under whose direction are classed the affairs of the Territories of Hawaii and Alaska, has been requested to ask the State Department to transmit the invitations of the union to the different countries of the Pacific through their ambassadors and representatives in Washington. In the past the State Department has done this with the explanation that the conferences are not official or called by the United States Government, but that the invitations to take part in conferences are placed before the governments at the request of the Pan-Pacific Union.

Establishment of Memorial Chest Clinic.—The board of directors of Mount Zion Hospital are in receipt of a fund of $5000 given to the hospital by Mrs. Abraham Lincoln Brown for the establishment and maintenance of a chest clinic in memory of her husband. The clinic is to be known as "The Abraham Lincoln Brown Chest Clinic." The new department will consist of three branches: a pulmonary clinic, which has already been in existence for several years; an allergic clinic for the treatment of asthma and allied conditions; a chest department within the hospital for the diagnosis and treatment of all thoracic conditions, particularly surgical.

Of late years chest surgery has made tremendous advances, so that operations on the lungs can be performed today with comparative safety. These operations will effect cures in patients who heretofore have been doomed to early deaths.

A diagnostic group has been formed consisting of Doctors Harold Brunn, William C. Voorsanger, A. Lincoln Brown, and Fred K. Firestone, who are all particularly well trained in the field of pulmonary diagnosis and treatment.

The services of the clinic are to be available to all, inside and outside of San Francisco, either on a free or pay basis. Physicians desiring the services of this new department may refer their patients to the group in charge for diagnosis, no medical fee being required.

A completely equipped allergic clinic for the treatment of asthma is now in full operation. Facilities for complete x-ray and bronchoscopic examinations in specially designed rooms are now being installed.

The donor of the fund has given the committee in charge assurance that more funds will be available as needed. The purpose of the fund is not only for the purchase of apparatus and maintenance of the department, but for subsidizing beds for worthy patients requiring diagnosis or surgical treatment.

Patients from out of town desiring to avail themselves of these opportunities should first consult their local physician for reference to the clinic.

READERS' FORUM

San Francisco, California,
December 28, 1928.

Re: Cyril von Baumann

Emma Pope, M. D.; George Kress, M. D., Editors.

Dear Doctors: We are enclosing herewith copy of a letter just received with a rubber-stamp signature—H. W. Moore, M. D., P. O. Box 1376, Pittsburgh, Pa.—alleging that Cyril von Baumann is borrowing money from doctors throughout the country, and is headed this way.

Reference to the *Journal of the American Medical Association* of October 27, 1928, page 1298, under "South Carolina," reads as follows:

"Cyril von Baumann's License Revoked.—The State Board of Medical Examiners of South Carolina advises that at a meeting July 12, license No. 1691, issued December 2, 1926, to Cyril von Baumann, was revoked, annulled and canceled. It appears that on application for a license, von Baumann claimed to have graduated from the University of Heidelberg in 1914. An inquiry from the headquarters of the American Medical Association brought a reply from the University to the effect that a diploma had never been issued to anyone in the name of Cyril von Baumann in the period from 1910 to 1915, and that no student by that name had been matriculated during that time. The A. M. A. has had inquiries about von Baumann from different parts of the country.

His last known address was Bloomington, Maryland."

We believe it would be a wise procedure to have a notice placed in California and Western Medicine warning the doctors of California against imposition.

Very truly yours,

C. B. Pinkham, M. D.,
Secretary-Treasurer.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume II, No. 1, January, 1904.

From some editorial notes:

. . . A New Year.—The journal is more than glad to felicitate every member of the society upon the completion of its first year of life, and to extend to all its heartiest good wishes for a still more profitable New Year. From a mere child in long clothes, the society has grown in one year to a pretty vigorous youth, representing the potential strength of something over one-half of the eligible physicians of the state. Its growth has been phenomenal and is increasing with marvelous rapidity. . . .

. . . We are considering the addition of physicians of Oregon and Washington, and making the Register a Tri-State Register. What do you think of the idea? The compliments of the season have been earned; we hope they will be even more deserved this time next year. . . .

. . . Pithy Papers.—The editor has attended several meetings for the organization of county societies, and has been struck by one thing more particularly than any other—the desire of the physicians who get together to form such societies to omit the long, tiresome papers compiled from textbooks or journals, and to confine the work of the society meetings to short, pithy papers or reports that deal with practical questions and actual experiences. . . .

. . . A Vital Question.—One of our youngest component societies—Merced County Medical Society—discussed, at its first meeting, one of the most vital questions in the whole range of medicine: The status and abuse of the secret proprietary preparation. . . . . A safe rule to follow is to solely prescribe perfectly known drugs and medicines; and if a manufacturer declines to advertise the ingredients or the formula of his preparations, conscientious physicians can do nothing less than refuse to prescribe them. . . .

From an article on "Cases of Tuberculosis of the Genito-Urinary Tract, with Remarks," by George Chismore, M. D., San Francisco:

. . . Improved methods of diagnosis, together with a clearer recognition of clinical symptoms, have brought us to the conclusion that tuberculosis of the genito-urinary tract is far more frequently encountered than was formerly believed. . . .

. . . Treatment.—I have but little to offer in regard to treatment, regarding it as wholly expectant. . . .

From an article on "Peritoneal Adhesions—Their Symptomatology, Pathology and Prevention," by E. E. Kelly, M. D., San Francisco:

. . . Asepsis has been the inspiration of much bad surgery. It has made safe, as far as the life of the individual is concerned, many operations which were formerly attended with a very high mortality. It has stimulated the performance of many operations that were formerly considered unjustifiable. A low mortality has become synonymous with good surgery. Many a victim of the scalpel is suffering more from the results of his operation than he did from his disease, while his case is used to swell the statistics of "successful operations" of the enterprising aspirant for surgical honors. . . .

From an article on "What is Conservatism in Mastoiditis?" by W. S. Fowler, M. D., Bakersfield:

. . . The position I take is that mastoiditis is and can be only a surgical disease, and that its treatment

* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

differs in no way from other surgical diseases of similar nature, and that conservative treatment consists in early and thorough operative procedure. . . .

From an article on "Meeting of the Southern California Medical Society, Held at Redlands, December 2 and 3, 1903" (reported by H. P. Hill, M. D.):

. . . President John C. King of Banning called the meeting to order and introduced Dr. T. M. Blythe, president of the local society, who delivered a short address of welcome. . . .

. . . A banquet was tendered the association by the Redlands Medical Society in the evening. D. C. A. Sanborn of Redlands introduced Dr. Fitch Mattison, who acted as toastmaster, and a very pleasant evening ended the thirty-second regular semiannual meeting of the Southern California Medical Society. . . .

Other Society Meetings.—Alameda County. Meeting called to order at 8:30 p. m., Tuesday, December 8, Doctor Hamlin presiding.

The first paper was read by Dr. F. L. Adams, the subject being "Surgical Treatment of Perineal Lacerations." . . .

Alumni Association Medical Department University of California.—The Alumni Association of the medical department of the University of California held a special meeting on December 1, 1903, Dr. George E. Ebright presiding.

Fresno County.—It becoming known that the Board of Examiners was without funds to defend itself in the suits brought by Doctor Hodghead and others to have the board ousted, it was unanimously carried that the sum of $50 be contributed by the Fresno County Medical Society for the purpose of assisting in defraying a part of the expense of defense. . . .

Los Angeles County.—Dr. LeMoyne Wills moved that $200 be sent to San Francisco as this county medical association's contribution to the "Medical Defense" fund, to be used in defending suits brought against the Board of Examiners. It was seconded and carried.

The following letter was received:

Pasadena, Cal., November 10, 1903.

To the Los Angeles County Medical Association, Greeting:

At a meeting of the Pasadena Medical Society, held this evening, it was voted unanimously that we adopt the Constitution and By-Laws of the Los Angeles County Medical Association and become the "Pasadena Branch" of the same association. Charles D. Lockwood, President. J. E. Janes, Secretary. . . .

Monterey County.—Organized December 9, 1903. . . This is the eighth county society that has been organized through the efforts of the trustees, or rather, through the work of the editor, at the request of the other members of the Board of Trustees. In every case it has been found that the physicians of the counties were desirous of having county organizations, but doubted the possibility of perfecting and maintaining an organization. . . .

Sacramento County.—The Sacramento Society for Medical Improvement met in regular session at the office of Dr. H. H. Look on November 24. Dr. H. L. Nichols occupied the chair during the first part of the meeting, and later Doctor Ross, the president, presided. . . .

. . . The society then indulged in a free discussion of vaccination and kindred subjects suggested by the present smallpox epidemic.

Dr. J. H. Parkinson said that as physicians we should impress upon the public that quarantine and disinfection are only secondary matters, and that the proper method of dealing with smallpox is by vaccination. We know positively and absolutely that the disease can be prevented by thorough vaccination, that the preventive measure is harmless, and that we should earnestly impress this upon the people. . . .

. . . Dr. W. J. Hanna said that while in the Philippines he had charge of several divisions of the troops as a medical officer, and that the orders were that all soldiers should be properly vaccinated. In Cavite, where such precautions were not taken, smallpox existed to a large extent, but in the army there was hardly a case. He believed careful precautions should be taken in vaccinating, so that no complications should arise that could be prevented, and in this manner the people would favor vaccination rather than antagonize it. . . .

Santa Cruz County.—Organized December 22, 1903. In response to a call sent out by the organizer appointed by the Board of Trustees, the following physicians of Santa Cruz, at 8 p. m. on the 22d of December, and by motion requested affiliation with the state society: Doctors Bush, Christal, McGuire, Hedgpath, Pope, Phillips, Priestley, Vaux, and Watters. . . .

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. Pinkham, M. D.
Secretary of the Board

News Items, January, 1929

Dr. Charles F. Applegate, prominent nerve specialist, with offices in the Pacific Mutual Building, today was arrested on a charge of illegal possession and sale of narcotics in violation of the State Drug Act, the police reported. Doctor Applegate, who is sixty-three years of age, sold $7 worth of morphin to a police operative, according to R. H. Dundas, special agent of the State Pharmacy Board, who directed the Police Narcotic Squad in the investigation.—*Los Angeles Herald,* November 19, 1928.

We understand steps are being taken to pass a measure at the coming legislature for the purpose of issuing licenses to those who join the "California State Advanced Therapeutists," which filed articles of incorporation with the Secretary of State November 22, 1928, among its objects being "to establish high standards of ethics of mutual protection . . . to put forth an honest endeavor to establish legal rights for advanced therapeutists," the principal place of business being in San Francisco.

Dr. Percy Purviance, head of the Berkeley Chiropractic College, announced here today that a motion for a new trial in the suit which resulted in the cancellation of the franchise of the college will be filed in the Oakland Superior Court. The franchise was ordered canceled on November 28 by Judge J. J. Trabucco on petition of the State Board of Chiropractic Examiners. The board charged in its complaint that the Berkeley Chiropractic College had granted diplomas to persons wholly unqualified to receive them. Doctor Purviance claimed that the order issued on November 28 was in direct violation of a permanent injunction issued on March 16, 1926, in the San Francisco Superior Court.—*Berkeley Gazette,* December 6, 1928.

In the list of forty-four graduates of medical schools from all parts of the world who successfully passed the October, 1928, written examination given by the

Board of Medical Examiners, the highest mark was obtained by Dorothy Johann Starks of Stanford University Medical School, who made the general average of 92 7/9 per cent.

"Guilty of manslaughter" was the verdict returned last night by a jury after deliberation for more than six hours in Superior Judge Aggeler's court against Dr. Frank L. Burleigh, Burbank physician, charged with the murder of his janitor, Jack Stachell, on October 17 last. The sentence of from one to ten years in the state penitentiary will be pronounced Friday morning at 9:30 by Judge Aggeler. . . . Burleigh was given several tests following the slaying to determine whether he was unbalanced mentally or intoxicated, and doctors reported that he had been under the influence of liquor.—*Los Angeles Times,* December 5, 1928. (Previous entry, September, 1926.)

"Under the California law a corporation cannot practice dentistry. Under this ruling made yesterday by Attorney-General U. S. Webb, the State Corporation Department will deny an application from Doctor 'Painless' Parker of San Francisco for a financial reorganization of his system. Attorney-General Webb's ruling was made in response to a request by Corporation Commissioner J. M. Friedlander. Pending before Friedlander is a request from the Parker Dental System Company, a Delaware corporation, for authority to sell fifteen thousand shares of stock to holders of the Associated Dental Supply Company owned by Mrs. Frances E. Parker, two dentists, and to the public at large. Mrs. Parker is the wife of 'Painless' Parker. Except for two qualifying shares she owns the Associated Dental Supply Company, a California corporation, outright. This Delaware corporation would license dentists to operate under the Parker system. . . . Mrs. Parker, through her stock holdings, would be the manager of the corporation; but the California law says that none but a licensed dentist may practice dentistry or manage a dental office. Mrs. Parker is not a licensed dentist and neither is the corporation. . . . " This opinion is of interest in view of the frequent contention that corporations cannot practice medicine. (See "News Items," November, 1926, and April, 1928.)

According to news item printed in the San Francisco *Chronicle* of November 27, 1928, Governor Young named Dr. C. A. Herrick of San Francisco and Dr. John M. Blodgett of Lodi as members of the State Board of Dental Examiners. Both of these dentists have served for many years on the dental board.

Further investigation of J. Jaques Fabian, mentioned in "News Items," discloses that said individual was reported to have died many years ago in the East and hence our interest is aroused in the individual who recently was reported as holding the Northwestern University Medical School diploma issued J. Jaques Fabian in 1907.

Charging that her erstwhile guardian mismanaged her estate during the term of his office, Mrs. Ernestine Engelhardt, aged Oakland widow, filed suit in Superior Court yesterday seeking a final accounting of the property (San Francisco *Examiner,* December 13, 1928). (Prior reference, "News Items," October and December, 1927; Januay and May, 1928.)

Trial of Dr. Edward C. Fortin, charged with violation of the state chiropractic law, by advertising himself as a physician and failing to add the letters "D. C.," will be set tomorrow in Municipal Judge Sheldon's court. Complaint against the physician, whose offices are in the Loew State Building, was sworn out by Bert Humason, special agent of the State Board of Chiropractic Examiners. Humason said Doctor Fortin's license permitted him to practice only as a chiropractor while the physician actually was operating in extended medical lines.—*Los Angeles Express,* November 21, 1928.

According to report, Rose Guaranga, midwife, Oakland, on November 27, 1928, pleaded guilty to a violation of the Medical Practice Act and was placed on probation until May 15, 1929.

Dr. Ottoman Zar Adusht Hannish, self-styled "Blessed Master" of a cult of asserted Sun Worshipers, was being questioned by police today regarding the disappearance of Mrs. Hedwig Arens, a member of the sect. (Press dispatch dated Los Angeles, November 9, printed in the San Francisco *Call* of the same date.) (Previous entry, June, 1928.)

Lee Shi Kim, local Chinese doctor, is shy $250 as a result of his arrest yesterday by Inspector R. M. Noble of the State Board of Medical Examiners on the charge of practicing medicine without a license.—*Salinas Index,* November 16, 1928.

In a news dispatch dated Kansas City, Missouri, December 7, printed in the San Francisco *Call* of the same date, was related: "Suspension from the Missouri State Medical Society of Dr. A. L. Skoog, widely known psychiatrist, was sustained in a report made public here today by the Board of Censors of the Jackson County Medical Society. Doctor Skoog was banned because of his defense testimony in the William Edward Hickman case in Los Angeles."

Dr. Ramon Tjarks, sixty-two, chiropractor, held a belated Armistice Day celebration by himself yesterday. It may have been that business was dull and he was merely trying to keep in practice. . . . The chiropractor's office showed evidence of having met with foul play. . . . Failing to kick in the door of Sacred Heart Church at Fell and Fillmore streets, Doctor Tjarks contented himself with smashing a window. From then on it was a contest for supremacy between chiropractic and jiu jitsu as practiced by the San Francisco police. Jiu jitsu won, and Doctor Tjarks was booked on charges of malicious mischief and being intoxicated in a public place.—*San Francisco Chronicle,* November 15, 1928.

Notice was served on the secretary of the Board of Medical Examiners that on November 27, 1928, the action of the board revoking the license of Clayton E. Wheeler was set aside by the Superior Court in San Francisco and notice of appeal was filed.

According to reports, Iwachika Yamamoto pleaded guilty on November 22 in Los Angeles to a charge of violation of the Medical Practice Act and paid a fine of $100.

The District Court of Appeal of California, First District, Division 1, in affirming a judgment of nonsuit in the instance of a corporation conducting a department store, who employed the services of a chiropodist, said chiropodist in connection with his professional duties in said store having been involved in a suit for damages, held in a decision (261 Pacific Reporter, 328) that a corporation could not practice through a licensed person. This apparently is another decision to be added to the list holding that corporations cannot practice.

Mosquito Extermination in Mediterranean.— The Health Committee of the League of Nations has decided to start a mosquito survey of the Mediterranean countries and to begin a battle of extermination against the mosquito which transmits dengue to human beings. There have recently been more than 850,000 cases of dengue fever in Greece, with 1372 deaths.—*Medical J. and Record.*

CALIFORNIA
AND
WESTERN MEDICINE

VOLUME XXX FEBRUARY, 1929 No. 2

THE MENACE TO MEDICINE*

By Rexwald Brown, M. D.
Santa Barbara

A NEW note has been introduced by observing and thinking medical writers into the literature of medicine. This note is a combination of anxiety, distress and even fear. The medical profession is undeniably disturbed by movements in the social structure whose waves, with ever increasing vigor, are beating against a medical position which has existed for centuries, a position which has seemed unassailable.

There is danger ahead which is too little perceived. Unless it be countered, the service which the medical profession is able to render the public will be seriously curtailed, and the public will not secure the benefits of knowledge to which it is entitled.

The malign influence over which the profession is agitated is an insidious one. The present commercialized age becomes with increasing power gluttonous for domination over all human activities. It is reaching out to engulf the medical profession and compel it to bow to the supervisorial management of its high-powered votaries.

The boundaries of commercialism are expanding constantly. Able leaders with great vision are contributing mightily to social advance. But when money and the organizations created thereby attempt to control those matters which should be inherently best directed by medical knowledge, a situation has arisen which should compel medicine to examine its position in the scheme of things.

The menace which hovers over medicine has, strange to say, first, grown out of medicine's contributions to human welfare, and second, out of its failures to manifest adequately the worth of its constantly increasing knowledge.

SHADOWS OF THE MENACE

The lay public, singly and collectively, with a wide diversity of selfish and altruistic points of view is active in taking advantage of medicine's contributions. Life, health, accident and industrial insurance companies are shaping many of their policies on medicine's discoveries. This is commendable. But the menace appears in the employment of large numbers of medical men by the insurance companies. They are being subordinated to positions very largely of technicians.

Another shadow of the menace is the insistence by groups of private citizens and politicians that medicine be socialized. Socialization means the subjection, by legislative control and political manipulation, of the medical profession in a system of state medicine which includes health insurance and compulsory professional attendance. Carried to a logical end, the states and the nations would compel physicians to practice on terms dictated by lay people.

The menace exists in a mild form in the general educational sphere where lay boards supervise educational hygiene. Also in spheres designated as social uplift there are many organizations actively interested in promoting health instruction, in supplying funds for health demonstrations, in creating public opinions on health matters and in attempting to secure the enactment of local and national health laws. Medical personnel is not intimately associated with the work of these organizations.

Medical education, too, has felt the touch of the menace. Great universities and large foundations, through their lay boards of control, by inference and promise of financial help, seek to regulate the placement of medical schools, the adoption of curriculums, and to dictate the selection and compensation of teaching professors.

An aspect of the menace which has not taken deep root is the organization of lay institutions which practice medicine. Doctors in these organizations are employees carrying out the policies of lay directors.

A particularly serious phase of the menace is the strengthening of the lay influence in the control and management of hospitals. Let it not be forgotten that hospitals are workshops of the medical profession. Lay organizations, including religious orders, see no incongruity in their assuming the regulation of medical practice in medical workshops. The motives actuating these bodies emanate from the highest forms of benevolent and philanthropic thought. It is not creditable to medicine that the lay world has for generations been obliged to build and conduct the workshops essential to medical practice. Why should people who have had no training and experience in medicine find it necessary to manage hospitals? The answer is that physicians have demonstrated little interest in the supervision of affairs peculiarly their own. The lay public has become generally convinced that members of the medical profession are not fitted to handle mat-

* Read before the Santa Barbara County Medical Society, September 10, 1928.

ters which require unified effort. The belief is common that physicians have no executive capacities and their said jealousies of each other prevent them from formulating any constructive policies.

The lay trustees outline the policies governing the hospitals. They require visiting physicians often to submit to rules and regulations made by lay superintendents or head nurses even though these rules and regulations may be contrary to what is considered by physicians as best suited to the welfare of the patients.

Hospitals in communities are serviceable only through their staffs of attending physicians and surgeons. These staffs send in the patients without which hospitals would have no reasons for existence. Lay trustees recognize their dependence on staffs and grant them the high (?) honor of selecting from among themselves executive bodies which have the privilege of carrying medical difficulties to the trustees. In this way the staffs are lulled into a feeling that they are integral factors in the management of hospital affairs.

Lay control of hospitals has introduced a new feature into the field of medical practice. Some hospitals are practicing medicine as a business. These hospitals are hiring physicians, charging patients for professional advice and treatments by these physicians, collecting the fees and entering them on their books as revenue received. By this practice hospitals are actually competing with their staff members. Obviously there are possibilities dangerous to both physicians and hospitals incident to this lay advance into the field of medical practice.

THE PROTECTION OF CULTISTS

The foregoing rather sketchy outline is but one face of the menace. The other face is perhaps even more disturbing to contemplate. It is that the public has measurably lost confidence in the scientific medical profession not only as to its ability to promote community health but as to its competency in the management of disease. This statement cannot be easily set aside in the face of the increasing prominence of medical cultists in medical activities. And the cultists are being protected in their unsound opinions and tactics by public attitudes and legislative enactments which enable them to practice medicine largely without restraint. Encouraged by the manifestations of esteem in which they are held, the cultists are broadening their excursions by efforts to compel their inclusion on boards of health, whose energies they now oppose and deride. Thus the menace grows apace.

THE PROFESSION'S MEDIEVAL ATTITUDE

Many physicians perceive that there is something very disquieting in medicine's present-day participation in human affairs. Yet altogether too great a number are indifferent to or even not cognizant of the lay public's failure to endorse the profession's self-accepted position in civilization. This position has long been thought by medicine to be of cardinal importance and must be as unalterably preserved as are the religious concepts held by fundamentalists.

There has been ingrained in the profession for centuries past an understanding that its service to humanity can be best expressed by the development of a reticence about its participations in the scheme of life. This attitude of mind has led largely to the limitation of a physician's activities to the care of sick individuals and to a none too active part in disease prevention. Why such an attitude of mind has been developed is not clear, but there is no question that it has become a tradition. It is undoubtedly the outgrowth of a code of behavior used to govern the lives of young men who followed in the footsteps of Hippocrates. Hippocrates, who lived 2500 years ago, was the author of the code. It was intended to be a guide for moral conduct in the contact between physicians and patients. It antedated the Golden Rule. The spirit of the Golden Rule and the spirit of the Hippocratic code are the same. No one considers that either one needs alteration.

It is unlikely that Hippocrates expected his code to be a document covering all the activities of the medical profession for centuries to come. But even unto today aloofness maintains itself in the ranks of medicine as consistent with the spirit of the code.

PAWNS RATHER THAN GUIDES

It is no overstatement of fact to reiterate that the future of the regular medical profession is imperiled by lay encroachment. All too soon, if physicians do not unite to thwart the menace, they may be relegated to positions of employees under control of organizations using the knowledge which has been so laboriously dug by medical men from nature's storehouse. Civilization would not gain by the transference of the medical profession to the status of pawns rather than of guides. The ambition to discover new knowledge would be generally stifled and individual initiative would not rise to high levels. Ambition and individual initiative should remain as priceless incitants to progress.

Certainly there can be no credit to medical men that they have failed to realize that "the old order changeth," that they are not awake to the adjusting alignments in the sociologic, political and economic fields. Scientific medicine is not leading in any constructive movement for human betterment. Sad to say it is not even keeping step. Under the standards of the centuries-old traditional code, doctors as a body have been content to toil in a colorless negative way.

HOW TO THWART THE MENACE

How is the menace to be thwarted? Medicine must broaden its concept of its serviceable relationship to humanity. It must break free, not from canons of honorable dealings with the public and professional brethren, but from attitudes of mind, regulations and customs which have become engrafted upon the profession to the extent of impeding its full usefulness. Age-long

absorption in special fields of knowledge associated with partial detachment from movements in other spheres of human endeavor has made the medical mind somewhat insular. One aspect of this insularism is the delusion had by physicians that the public is conversant with the valuable knowledge possessed by the profession. Well-informed citizens perhaps do possess considerable information of the worth of medicine's contributions to the welfare of mankind. The great masses, however, do not possess this information.

The annihilation of this delusion must be the first step in the entrance of the medical profession into acceptance of new responsibilities in consonance with the spirit of modernism which demands and seeks enlightenment. This new age is clamorous for instruction and gets all kinds—good, bad and indifferent—through the press, magazines, movies and radio. There are no restrictions to free expression through these media. The false and the vicious in thought secure equal prominence with the true and the good.

MEDICINE'S HIGH RESPONSIBILITY

It is hardly possible that anyone would controvert the statement that individual, community and national health is basic to the fullest expression of mankind's physical and mental activities.

No intellectual body is better able to point the way to health than the regular medical profession. Medicine has acquired vast resources of knowledge accumulated over centuries of intensive study in, clinical observations of, and patient research into the phenomena of human existence. If all this knowledge could be made available to and put into practice by the people of this world, the increase in human health, efficiency and happiness would be incalculable.

Medicine must assume a new obligation, a new function, and accept as its high responsibility the task of making medical knowledge operative in the development of the social structure. If medicine fails to project itself as a guide into our outreaching civilization, physicians' voices will be heard with ever lessening respect and consideration. Lay domination will fasten itself stronger and stronger upon the profession.

Medicine must make known, must carry its knowledge to the people. The people in general seem to have no inclination to seek out the truth for themselves. This fact was recognized by a great religious leader centuries ago when He urged His disciples to go spread the gospel. The regular medical profession must prove that its services in the alleviation or cure of disease and in the promotion of individual and national health are incontestably superior to all other services seeking endorsement in the same fields.

Civilization has entered a new era of thought. Scientific knowledge is making steady headway, casting aside as obstructions more and more of the presuppositions and prejudices which have influenced man's beliefs and the growth of his institutions. Medicine, whose methods are inherently scientific, must accept leadership in the development of the new type of mind existent today.

A COLOSSAL TASK

It is rather easy to reflect on medicine's failures or lack of vision, but it is not easy to suggest measures for solving what is becoming a major problem, lay domination in medicine's activities.

Medicine must undertake a colossal task. Within its own ranks it must create an organization which will present a new face to the world. It must learn to impress mankind with the fundamental values of its discoveries, of its learning and of the applicability of its knowledge to the complex affairs of life. This effort should not seek the glorification of medicine, but should be dedicated to human progress.

How will this new movement be born and make itself felt? Would it not be good judgment for the officers and trustees, the authorized leaders of the American Medical Association, to call together the socially minded physicians of the nation to consider mastering the aggravating matters inimical to the best interests of the public and the profession? Perhaps the state medical associations might take the initiative and, after conferences, pass on their views to the general body, the American Medical Association. These meetings would give no consideration to clinical and research activities.

Subjects for discussion. Agenda might include the following subjects:

SUBJECT NUMBER ONE

How best to establish in the public mind the importance of dependence on medicine's treasury of knowledge.

As a preliminary step perhaps medicine may have to find a way by which education in the common schools and universities can include a history of medicine's discoveries, its achievements and its outstanding personalities. Such an excursion into the field of education would, undoubtedly engender bitter opposition. But the voice of opposition would be a voice of unintelligence and prejudice. Surely intelligent thought could see no objection to the exposition of a history of infinitely more value to human beings than much of the history which is taught. The history of medicine would acquaint the student with the practical application of the interrelationships of biology, chemistry and physics in the scheme of things. The greater the knowledge a student gets of biochemistry and biophysics the more likely he is, when he becomes a man, to estimate at their true values the assertions and claims of unintelligent persons on matters of health and disease.

SUBJECT NUMBER TWO

Is education in the medical schools antiquated and inappropriate to the needs of our expanding civilization?

There will probably be agreement that the schools are adequately presenting the knowledge which insures competent diagnosticians, consultants, and therapeutists. Admitting this adequacy,

do the medical schools advance in their classrooms what is beautifully expressed by Dr. Langley Porter, dean of the University of California Medical School? He says, "The other which we are pleased to speak of as professional, seeks to give man a more comprehensive view of his profession and of his duties toward the community that he is to serve. The superior prestige of the profession rests on . . . understanding that the foremost duty . . . is to supply unselfish service to others. Besides the idealism of community service is another quality that marks the professional school: its endeavor to train its men so that each of them will be able to contribute something of leadership to the life of his times." Unless a program in consonance with this point of view becomes operative, the prestige of the medical profession will suffer depreciation. High regard for physicians will markedly decrease and the menace will creep on, not insidiously, but actively to controlment.

INFUSE NEW ELEMENTS INTO MEDICAL TEACHING

The discussions may lead to the discovery that teaching of medicine needs the infusion of new elements or at least the rehabilitation of a much neglected one. It may be that the American Medical Association would insist that medical schools institute a course giving students, in greater detail than would be given in the common schools, a history of medicine from its inception. This course should picture the deep relationships of medicine in the advancement of society's interests. The most learned, socially minded and convincing speakers in the profession should deliver the lectures on these vital topics. In the student's mind there should be inculcated a desire to serve not only as a trained scientific professional craftsman, but also as a citizen leader in all matters affecting social progress.

This new course should be most comprehensive. It should present to students the many phases of the problems which confront the profession of medicine. Some of the topics which should be given analytical surveys are:

(*a*) Preparation for public health service.

This branch is the most important of all medicine's functions. But it gets little consideration from the teachers of medicine. The profession is theoretically interested in disease prevention, but actually gives it scant attention. Students are not taught much about public health and consequently consider it of minor moment. In general the best physicians do not seek public health careers.

(*b*) Importance of physicians becoming administrators and executives in their own fields.

(*c*) Proper methods of publicity in the promotion of health.

(*d*) Best methods of preventing dishonesty, quackery and unintelligence in medical practice.

(*e*) How to secure legal sanction for sound medical principles.

(*f*) How ethical concepts and practices evolved.

(*g*) The establishment of business methods in medicine consistent with established economic standards.

(*h*) How best to further the development of research medicine.

Philanthropy and medicine are close associates in this field. Medicine must continue to merit the esteem and confidence given it by philanthropy. It must render strict business accountings for the moneys intrusted to its use for research study. The policies directing the expenditures in research should, however, be formulated by medicine.

The possession of information such as would be provided by the course indicated above would enable medical graduates to exert a powerful influence in overcoming an apparent stagnation which exists in medicine today. The object of this course should be to foster the highest idealism in medicine, as well as to build a statesmanlike attitude of mind in the solution of problems which affect mutually the welfare of society and medicine.

SUBJECT NUMBER THREE

Is medicine so wedded to individualism in thought and practice that it cannot or will not create an organization whose influence will be strongly positive in the affairs of civilization?

It may be learned, to the surprise of physicians, that medicine is not organized at all to take an enviable prominence in leadership. It has no method or system of impressing the worth of its knowledge on the public.

NEED FOR ADMINISTRATIVE ORGANIZATION

Medicine is proud and justifiably so of its large national and state bodies called medical associations. But candor compels the admission that these associations are interested largely in keeping their members continuously conversant with the advances made in clinical and research fields. In other words the associations exist for mutual improvement.

The necessity for maintenance of these associations is not questioned. From them as nuclei, however, should grow a centralized organization of world-wide scope and influence. This centralized organization should find the means of conveying to the world the worth of medicine's mounting knowledge. This leads to the next subject in the agenda.

SUBJECT NUMBER FOUR

Should medical men undertake administrative activity?

If medicine is to take a proper place in society it must assume the duties of leadership. And these duties entail initiative thought, organizing, executive and administrative capacity.

The apathetic indifference of medicine to participation in the concerns of life other than those agreeable to its own point of view reacts upon the public in a natural way. The public gets the conviction that medicine interests itself little with

human movements, is incompetent except in the treatment of disease, and is nonconversant with the business standards and methods possessed by all other classes in society. These thoughts lead the public to assume guidance and control, in its own behalf, of medical activities which should be much better handled by physicians.

Society has need of and wants use of the knowledge which has come to medicine through backgrounds of general education and specific learning acquired over years of study not necessary in most vocations and callings. This knowledge must be humanized by medicine itself through a system of organization and administration developed by the profession comparable with the systems developed in the fields of business, finance, industry, religion and education. Medicine must accept, build and control an administrative leadership in matters best understood by itself. Some of these matters are municipal and national health, sanitation, educational hygiene, medical economics, hospital control and management, medical social service and medical education.

A universally known concrete example of the dependence of lay achievement on medical knowledge was the building of the Panama Canal. Not until the general administrative and engineering control in the Canal Zone gave way to medical administrative knowledge could the work of building proceed. Administrative medical knowledge was not given only to General Gorgas. It slumbers in the heart of medicine and will reach high expression when the centuries-old wall of aloofness is broken down.

SUBJECT NUMBER FIVE

Does medicine's conception of itself as a profession justify disregard of business methods in the practice of the profession?

Altogether too often in an effort to impress the public with medicine's inherent altruism physicians have made the great mistake of appearing indifferent to or contemptuous of money. The public quickly senses this attitude and can hardly be criticized for looking at medicine in the light it has placed itself. The profession is thought to have no normal concepts of business and should not be trusted with control and expenditure of money even in the advancement of medicine's projects. The assumption that the doctor's profession places him beyond the sordidness of dollars meets from the public ready acceptance. Compensation is not infrequently curtailed or withheld from the doctor when his labors to individuals or in behalf of society are concluded. The continuing acceptance of this unsound economic doctrine is harmful to the best interests of society and of medicine.

Unless physicians secure from patients a legitimate fee for bringing relief or cure from disease and from society a compensation adequate to services rendered in the promotion of health; medicine will be unable to express itself in the fullest possible way. When the doctor is conceded the right in all fairness to make from his efforts a living commensurate with livings secured in other pursuits, medical economics will be on a sound basis. And being on such a plane will not mean medicine's retreat from the high altruistic standards developed through the ages. In the soul of medicine is the desire to give freely from medicine's storehouse to the help and welfare of members of the body politic who have no means with which to pay for the services. But the way in which this kindly ministration to the needy must be rendered should not, as is largely done now, be dictated by politicians and social workers.

Medicine must establish an economic basis on which it can carry out the idealism resident in the profession. But medical men must not exalt or permit themselves to be exalted. They are human beings and, like all others, enmeshed in the economic exactions of life. They must have sufficient money to function adequately as members of a profession. They do not seek money that they may be millionaires, but they do seek an amount sufficient to permit them to express the high purposes of the profession.

SUBJECT NUMBER SIX

Shall medicine adhere to an attitude of abhorrence toward publicity?

If medicine conceives of itself as an instrument of services to its fellow men, it must use publicity as one means of rendering service. What part of, or shall all of medicine's knowledge be made known to the public? And by whom shall the messages be delivered, by the profession as a whole or by individual members? The whole subject may promote lively debates. The conclusions reached may be that all phases of medicine which pertain to public welfare and progress should be presented. Exposition of medical methods in the spheres of symptomatology, diagnosis and treatment should be tried out. In general, however, the technical details of any scientific pursuit are tedious to listen to and not altogether comprehended by the public. Certainly personal boosting by a physician concerning his ability to cure this and that ailment will be taboo, as it should be. But a dignified public expression by a physician on matters of vital import in the social structure should not be considered personal advertising.

BETWEEN TWO CIVILIZATIONS

Medicine stands in the passageway between two civilizations. The old one has contributed to social progress through a system largely of individualistic effort. The new civilization is thrusting forth organized effort as its contribution.

Medicine's future position depends on the choice it makes between the old and the new standards. If it continues to abide by the old system it will become increasingly subject to lay control. If medicine chooses the new standards and creates an organization integrated for dynamic assertiveness, leadership in human affairs is assured.

Santa Barbara Clinic.

CONSTITUTIONAL PSYCHOPATHIC INFERIOR PERSONALITY—WITH OR WITHOUT PSYCHOSIS*

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Discussion *by Walter F. Schalter, M. D., San Francisco; Edward W. Twitchell, M. D., San Francisco; C. M. Haviland, M. D., San Diego.*

IF it is possible to help solve the problem of how to care for the group of psychically oblique or perverted persons, who should rightly be classified by psychiatrists as having constitutional psychopathic inferior personality (C. P. I.)—in this paper the letters C. P. I. will be used to refer to this class of patients—we would automatically solve 10 per cent of the problem cases of the lunacy court; as well as an unbelievably large percentage of the most difficult problems of such organizations as outdoor relief, veterans' bureau, juvenile protective, mental hygiene, police and drug addiction agencies, and criminal courts, truant officers, and all other activities having to do with those human beings, who, by reason of psychic instability and perversion, are or seem to be unable to react successfully to the normal present-day environment, especially in the urban centers.

Because the ramifications of the problems presented in these patients are inseparable from the economic and social life of every community, and because these ramifications are always as pathologic as those of a malignant growth anywhere else, it behooves medical science to move forward militantly, in an effort to help solve some, at least, of the problems involved.

Thus far very little of a constructive nature has been done in regard to these persons other than to arrive at certain more or less satisfactory definitive formulations, some of which will be here considered.

DOMINANT CHARACTERISTICS

1. Constitutional psychopathic inferior personality (C. P. I.) is an inherent constitutional condition which is the basis of personality, for the reason that it represents the sum of psychic elements of that individual. These elements are exhibited objectively in every case, in terms of pathological behavior.

It is not a disease, and is therefore not curable. Being a constitutional fault it may be corrected, but only by such means and methods as are capable of supplying psychic stability by the engrafting of normal acquired character factors—the term "character" being here used as the reaction to conventions and standards. These corrective measures are attained by the repetition of normal performances that are imperatively and successfully insisted upon by an intelligent preceptor who has been trained for this work. From the standpoint of clinical psychology this corrective work seems to be capable of accomplishment in a large number of persons who would be complete failures if left to themselves.

2. The pathological behavior (symptomatology) of these individuals is the essential expression, at least in part, of the following definite constitutional psychic factors:

(*a*) Hereditary taint.

(*b*) Hyper- or hypoirritability of the emotional sphere.

(*c*) Dysfunction of the intellectual sphere, even though possessed of normal intelligence level.

(*d*) Concomitant imbalance, obliquity or perversion of reasoning, judgment and will.

DEFINITIVE FORMULATIONS

A. *Hereditary Taint.*—This was shown with significant regularity and frequence in the direct line or in collaterals in patients who were specially studied.

B. *Hyperirritability or Hypoirritability of the Emotional Sphere.*—The term irritability is used in the biological sense as the capacity of receiving and responding to stimuli in a manner that is adaptive or useful. In this connection I quote Watson, with special reference to perverted emotions: "Society and one's own organization often make emotional outlets impossible along certain lines. When emotional expression is blocked in any one region, outlet seems to take place somewhere else." (The psychological definition of an emotion is that it is the consciousness on the part of an individual of some hereditary reflex taking place within the body. The acting mechanism is held to be closely associated with certain glandular apparatus and their functions, according to Cannon and others.) We are here chiefly concerned with the expression of perverted emotions in terms of behavior.

C. *Irregularities or Imbalance of the Intellectual Sphere.*—Integrity of the intellectual sphere implies free use of the reason, unimpaired memory, normal perception—the ability to think correctly. Thus it is seen that the C. P. I. patient is really afflicted with more or less perversion of the intellectual sphere that may or may not be affected by disease.

D. *Imbalance of Judgment.*—Judgment is here taken to mean the awareness of all extrinsic or intrinsic stimuli that reach the perception and, having become aware of them, the consequent ability to understand their nature and quality—to accept, reject and choose between them, *i. e.,* to appreciate them.

Judgment is thus a possession or asset that may be bad or badly used. The judgments of a constitutional psychopathic inferior (C. P. I.) patient are necessarily colored by the kind of an emotional sphere he or she possesses.

Imbalance of Will.—The will is here considered as being the expression of those psychic factors which regulate behavior or voluntary acts. It thus has to do with reasoning and libido in its widest sense; it is necessarily influenced by pre-

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vious experiences and therefore by quantitative memory.

In constitutional psychopaths the will is a variable quantity—and the memory as well. Both may well be termed capricious. This helps to explain many of their instabilities. In those whose factual memory is exceptionally good—and we find many of them—their inherent instability is due to judgment-and-will or emotion-and-will imbalance.

CLASSIFICATION OF SUBGROUPS

Sharp distinctions must be drawn between the various groups that are at present accepted by the Surgeon-General's office, even while admitting them to the general classification of C. P. I. This is as important as to differentiate between the various psychoneuroses. There is just as much difference between a C. P. I. or inadequate personality and a C. P. I. emotional, unstable person as there is between a neurasthenic and an hysterical patient. The fact of a wide divergence in symptomatology among the subgroups does not necessarily deny the basic diagnosis of C. P. I.

SUBGROUPS OF C. P. I.

Observe a parade of the constitutional psychopathic inferiors (C. P. I.'s) marching in columns of subgroups:

1. Inferior or inadequate group.
2. Paranoid personality group.
3. Sex deviates group.
4. Emotional instability group.
5. Criminal group.
6. Pathological liars group.
7. Nomadism group.

Here we have seven groups of individuals possessing all the dominant characteristics of C P. I. and differing only in group expression. It would not be difficult to at once denominate the various groups on sight. Let us consider them in turn:

1. *Inferior or Inadequate Group.*—We see here the ill-formed, timid, physically and psychically impoverished. Their attitudes show plainly their inadequate reaction to life.

2. *Paranoid Personality Group.*—This column is a strutting, contentious group—intolerant and egotistic to such a degree that they have not been able to adjust themselves to their environment. Many are well educated. Many have reached some degree of eminence, but their lives will show a constant succession of behavior phenomena characterized by strife and littered by countless letters and pamphlets which they have used as ammunition in their warfare against odds which they themselves have erected. Numberless disappointments have made them only the more obstinate. So preoccupied are they with grievances that they present always a ruffled appearance.

3. *Sex Deviates Group.*—One sees here a quite different attitude. Many are supercilious. Most of them are inclined to preoccupy themselves with their personal appearance. They present a quasi-sophisticated expression. They are not obtrusive, but rather retiring and more or less shut in. Some of them are obviously disturbed and seem to be expectant of attack. They are inclined to be suspicious. Many of this group have attained to superior educational levels.

4. *Emotional Instability Group.*—This group, like the first, is readily picked out. Some will be clamorous and hilarious—the easily angered and the just as easily diverted; others will be more depressed and exhibit their depression by copious floods of tears—the latter not commensurate with any true grief; in this group will be found many who attempt suicide by all sorts of queer and ill-considered methods and means, without success or the will to succeed—the "bluff" suicide. We see many of them in the lunacy courts, and one notes with amused surprise that so many of the females come into court "made up" as though doubling for a movie queen. Their instability displays itself in a jaunty exterior; they seem to feel they have justified their previous disappointment by their fake tragedy and do not even sense the absurdity of it. Many in this group are drug addicts and alcoholics who go on a spree "to forget."

5. *Criminalism Group.*—This is a sinister group—antisocial, furtive or overbold. By trial and success (?), and by trial and failure, they have taken up crime as their business in life. Many have sufficient insight to enable them to point out the weak points in their own characters. A great many of this group are emotionally hypo-irritable, they have no fear of consequences and are not deterred by a normal repulsion from doing atrocious acts, even though they may know enough to call them atrocious. They are the ones who follow the lines of least resistance and are dominated by libido—using the term in its broad sense.

6. *Pathological Liars' Group.*—This group resembles qualitatively the fifth, but is neither so antisocial nor so sinister. Compared to the other group they are like the pickpocket, as compared to the gunman and holdup. They are less sophisticated and more annoyed or disturbed because of their obliquity. They lie and steal frivolously, and as a rule are ashamed of it.

7. *Nomadism Group.*—The hobo and the nomad, who is a nomad because of inherent instability, need no description to call attention to them in a group such as is here assumed.

FURTHER ANALYSIS

These individuals have been called "feeble-minded in all psychic spheres except the intellectual." The majority of them are born with a sufficiently rich fund of intellectual endowment for normal needs, but they are impoverished in the factors necessary to normal performance. The result is that they never steadily maintain a performance level that would be warranted or expected because of their intelligence level.

In a conversation with Professor Kraeplin on this subject he stressed this point, which corresponded with my own observations, and we agreed upon another vital point which is: that, from the standpoint of the state, these unstable *"deséquilibrés"* (so described by Regis) are always a potential menace, for the reason that they are so unstable and yet are so endowed in the majority

of cases with high levels of intelligence that they never react for long to normally constituted environments that are at all complex. Their intelligence quotient may be high, but their achievement quotient is always low or perverted.

There are a few, whose achievements have ranked them as "geniuses"—examples are Tolstoi, Wagner, (ref. May)—but an analysis of the sum of the daily psychic performances of even such a group will show a total value far below their intelligence potential.

In actual practice the records show with monotonous regularity that these individuals proliferate an enormous mass of pathological behavior out of all proportion to their numbers. One cannot compute the ratio that exists between the relatively small number of patients who are the basis of this paper and the unbelievable amount of "grief" they have caused.

Measured in such terms as economic disaster, mental anguish to family, friends, and society, or in the actual destruction of human life alone, it is appalling.

Practically every writer on this subject voices the same idea. In 1922 May in his book on "Mental Diseases" concluded his valuable and comprehensive chapter treating with this subject with these words: "The influence of these individuals on the community at large is something we have no means of estimating at the present time."

Consider my own series and we find seven murders; one of these, preceded by the abduction of a twelve-year-old girl, has become notorious. My series show a mass of pathologic behavior phenomena that runs the gamut, from persistent minor infractions to the most horrific acts: thefts, embezzlements, burglaries, holdups with deadly weapons, check-passing, attempted suicides,, drug addiction, self-mutilation, murder with mutilation, abduction with murder and calculated mutilation of the body for the purpose of removing it from the scene of the murder and its disposition in order to obtain ransom. It is a grewsome parade—pathetic often—tragic often—pathologic always. The numbers of C. P. I. patients who attempt suicide is really appalling—and in these attempts many make the same characteristic failures as they make in the other activities they attempt—they seem incapable of making a success of anything, even of suicide.

DANGER OF CONSTITUTIONAL PSYCHOPATHS

The constitutional psychopath is more dangerous to society—and therefore to the state—than either the insane or feeble-minded.

For a long time society has realized the necessity for medical supervision of the insane. For a much shorter time it has been shown that feeble-mindedness is a medico-psychological problem, with legal and social welfare contacts; and society had first to be educated before it finally acquiesced in the medical dicta regarding it. In both instances the law, because of the personal and property rights involved and other purely legal phases, has attempted to deal with them. They have thus become medico-legal problems. So unfortunate has been the history of the attempt on the part of the courts of law to deal with what are primarily medical matters, that certain phases of these attempts have become scandalous. Instead of being aids to justice they have become aids to further crass injustice and selfish personal ends.

ABSURDITY OF JURY TRIALS IN MEDICO-LEGAL CASES

Nevertheless, something constructive has been done and the remaining weaknesses and evils are so apparent that they are capable of being corrected—provided society can be shown that it is just as absurd to convict a person of alleged smallpox by having a jury trial, as it is to so "convict" a person "accused" of insanity. Or to allow a truly insane person to demand a jury trial for the purposes of proving him free from insanity, that is, asking twelve laymen to make a diagnosis in a peculiarly difficult medical specialty and where a group diagnosis has already been made under the most favorable circumstances.

The great good to society is that the insane and the feeble-minded are really being more or less mobilized and segregated, with the consequent reduction of danger to society and the obvious betterment to themselves.

I doubt if tuberculosis is more of a menace to society than constitutional psychopathy.

And yet tuberculosis has been surveyed and studied to such an extent that society everywhere recognizes its menace and is willing to foot any bill that may be incurred by medical agencies for its prevention alone, not to mention the agencies for its cure.

It seems to be our plain duty as neuropsychiatrists to emulate the scientific and business methods of those medical men who have placed tuberculosis on such a firm basis and by so doing have really begun to solve its problems. First let us get at the basic truths of this psychic obliquity, which we term constitutional psychopathy, then crystallize our ideas into well defined form and subsequently educate society and its agencies to recognize it. The law will surely follow the call if society makes that call imperative.

CONCLUSIONS

The chief conclusions at which I have arrived are these:

1. Every constitutional psychopath is a potential menace to society for the reason that he or she is unable, because of inherent perversions, to react successfully to the complicated, present-day normal environment without suitable supervision.

2. The state has the duty, as well as the authority, to mobilize its forces against any menace from without or from within. This is inherent in the state. In disasters, riots, and epidemics of disease we are accustomed to the exercise of this authority—even if, in so doing, our personal freedom is denied. We are accustomed to the segregation and isolation of patients afflicted with certain dis-

eases, such as smallpox. The public has come to recognize the suitableness of and necessity for medical supervision of the insane and custodial care for the feeble-minded.

It is just as true that the constitutional psychopaths should be identified early: segregated when necessary; and kept out of circulation just as long as is necessary to rebuild their impoverished psychic characters to the point where the individual can float himself or herself. In other words, up to the time when he or she can successfully react to normal environment.

3. Whereas the insane, and the feeble-minded to a lesser extent, are almost total economic liabilities and a complete burden upon the state, this will not be true of the colonies that could be established for the constitutional psychopaths—and for very obvious reasons. Comparatively few insane are so little deranged in their intellectual sphere as to render them economic producers. The feeble-minded, who comprise the lower grades, are so constituted that they never had or will have sufficient intelligence to function other than on the red side of the ledger.

On the contrary the constitutional psychopaths, while inherently lacking in the ability to maintain of themselves, a sustained exercise of good judgment, a will to do and to manifest the emotional integrity requisite to psychic balance, nevertheless do possess the chief requisite, namely, intellectual competence, which, if governed and directed, is quite capable in many forms of dominating the weaker factors of psychic components by building up acquired characteristics that are good and then maintaining them.

If the foregoing be true, then it follows that there is some assurance that a more or less satisfactory solution of at least the graver problems of this particular menace may be evolved.

RECOMMENDATIONS

My deductions lead me to make the following recommendations:

(*a*) That there be established by the state certain colonies where the citizens of this psychically oblique group could be placed through suitable medico-legal process, just as early as the individual begins to fail to react to environment to the extent that, because of his or her behavior, a diagnosis of dangerous C. P. I. may be made sure and definite.

(*b*) The citizens of such colonies should be placed therein for undetermined periods and released only at the discretion of suitably constituted boards. Upon release there should be maintained a suitable supervision of every patient and for as long as residence within the state boundaries is maintained.

(*c*) The diagnosis of "constitutional psychopathic individual" should not be allowed as a defense for crime, except in such cases as where—to use the legal definition of insanity—the alleged criminal is in such a condition of mind as to prevent him or her from knowing the difference between right and wrong, and is incapable of appreciating the nature and quality of the alleged criminal act or acts. This will protect the cases of C. P. I. with psychosis.

COMMENT

In order to justify the opening statement of the paper and to further emphasize it, I call attention to the following:

Frequency.—An approximate idea of the numbers of identified constitutional psychopathic individuals may be arrived at through a consideration of the following facts:

One out of every two thousand recruits in our own Army during the period of the World War was rejected on this count by local examining boards. Innumerable cases were actually recruited for lack of identification. Those of us who sat as summary court officers in the various camps and military organizations saw many of the latter.

The reports of the Phipps Psychiatric Clinic show an admission rate of these cases of over 6 per cent during a five-year period.

Special Groups Personally Observed.—In a survey which I made of all cases that came before the Lunacy Commission of Los Angeles County through a three-year period, approximately 10 per cent of the alleged insane were diagnosed C. P. I., with or without psychosis. (The total of all alleged insane was over 11,000. Of these about 1100 were C. P. I., with or without psychosis, and of these I examined my share.)

In my service as neuropsychiatrist at the Whittier State School during several years service, another fairly large group of these cases was identified.

As a member of the neuropsychiatric department of the United States Army, Medical Corps, another fairly large group was observed by me while acting on various special boards and in the ordinary service, during my service in the Army, through a period of over three years.

These cases are becoming a common occurrence in the routine of all my clinics:

Thus, on April 13, in my service at the Neuropsychiatry Clinic of the Los Angeles County General Hospital three serious cases were brought in by the Out-Door Relief agencies. During one session of the Lunacy Commission, on April 11, I saw seven cases; four of these had attempted suicide. At the neuropsychiatry department of the Santa Rita Clinic of the Catholic Charities Bureau, on April 23, I saw three problem cases of C. P. I., involving tragic as well as pathetic episodes—each one the nucleus of an immense amount of family grief.

The writer's experience has also been that of others who have studied these cases. So this ominous parade marches on, and thus far we have no

means or methods for solving and administering its grave problems.

SUMMARY

To summarize the foregoing may I say that:

1. The group of cases of constitutional psychopathic (C. P. I.) individuals is certainly larger than has ever been computed.

2. Any group of individuals possessing the heterodoxical psychic components, which all C. P. I.'s possess, are such a menace to the integrity of the community that intensive research becomes imperative to the end that means for the administration of their lives and activities be evolved.

3. This is primarily a neuropsychiatric problem, and we who are neuropsychiatrists must accept our responsibilities; but we should invite the cooperation of all other agencies having to do with social problems of this nature.

2007 Wilshire Boulevard.

DISCUSSION

Walter F. Schaller, M. D. (909 Hyde Street, San Francisco).—Doctor Orbison has taken up one of the great problems of the neuropsychiatrist, that of the constitutional psychopath. The recognition of this type is not difficult for the specialist, but to the layman, on the contrary, preservation of ordinary intelligence and lack of manifest psychosis raises a serious doubt as to irresponsibility and need of supervision. The diagnosis, as the writer has pointed out, is based on obvious imbalance in the highest psychic functions, those of morals, will and judgment, and on the loss of emotional control. This condition is manifested by occupation failures and social maladaptations. It is not a condition by definition that is remediable by medical or psychological treatment, but is ingrained and a lifelong problem. Those with initiative, drift into criminality; those without, form a large group of the inadequate and irresponsible. The solution of the problem by supervision, control and segregation, as in colonies, advised by Doctor Orbison, meets with my approval; but with the present system of court trial by jury, overcrowding of the state institutions, and lack even of a state hospital for the criminal insane, I see but little chance of the establishment of such a colony at present. Would it not be advisable to make an attempt to recognize these cases in the school period, and by the aid of a social service follow-up system, endeavor to place these cases in suitable social and occupational environments? This course would further tend to education of the public to the fact, which they largely do not suspect, that we have a large number of inadequate individuals in our midst who are not feeble-minded, insane, or sick. It is by an awakened interest, by education and example, that the solution of such a problem follows as a matter of course.

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Edward W. Twitchell, M. D. (909 Hyde Street, San Francisco).—Constitutional psychopathic personalities form an important part of society. The great majority of them are without psychosis although individuals of this type are peculiarly subject thereto. In fact it may be taken for granted that the vast majority of psychoses are built upon a groundwork of psychopathic personality.

Those in whom the real psychosis never develops are numerous enough to cut a very important figure. It would be a much duller world if we did not have them. Most of the geniuses come within this group, and a very large number of the talented. The world would be much poorer if deprived of the work, especially in the arts, of the psychopathic personality. It has been said that if the rattlesnake were to be exterminated a picturesque feature would disappear from the landscape, one that added zest to mountaineering. Something of the same sort can be said, with a better justification, for the psychopathic personality. His irascibility makes him often a thorn in the flesh, his irresponsibility is a sore trial to his family and others who have to live with him, however amusing the public find him. The wanderer or nomad is often a romantic figure. The criminal group, however, we would willingly dispense with. They are often very persuasive, and their suave manners and insinuating ways have resulted in the ruin of many an honest person.

The sex group fill one with horror, disgust, or sympathy, depending largely upon how much one has studied them. They themselves in large part are far from seeking sympathy, many of them looking upon themselves as the salt of the earth, fashioned out of superior clay. They point with pride to the eminent ones who belong to their group.

The question of responsibility of these individuals is an important one. While it may be admitted that their condition is the result of congenital traits and early environmental influences and little due to their own vicious indulgences, it must likewise be admitted that in large part they can exert self-restraint within considerable limit and that they do what they do oftentimes because they are taking advantage of the laxness of law enforcement. The same individual faced with what he knew to be certain and severe punishment would achieve a restraint which he fails to exercise when he has no such fears This is notably true of the lying and swindling group, somewhat less so of the sex perverts and possibly of the irascibles. If society were, however, to accord them the immunity which many of them demand and their sentimental sympathizers accord them, life would be too difficult for the normals; so, for the present, the psychopathic personality should be forced to accept responsibility even though he be granted a mitigated responsibility under certain conditions.

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C. M. Haviland, M. D. (701 Medico-Dental Building, San Diego).—Doctor Orbison's paper brings to the attention of neuropsychiatrists, who should logically be the leaders in this department of research, the vital importance of the question as to what is the best way of dealing with such problem cases as are referred to in Doctor Orbison's paper.

As a first step in the solution of these problem cases we should make every effort to differentiate sharply between those individuals who are frankly mentally or physically defective or who may be suffering developmentally from the remote infections of early life, and who because of these handicaps are limited in their ability to reach a standardized "behavior goal"; and those who become psychopathic as a result of their emotional reactions to the unfortunate (psychopathic) methods employed in their training by methods such as suggestion, example, prohibitions, punishments.

With individuals belonging to this latter class the symptoms of personality defects are largely mechanisms of defense erected against what they feel is being put over on them, while with those of the former group the symptomatology of the psychopathy is more indicative of a fundamental weakness in the make-up of the individual either by inheritance or as a result of diseased processes—somewhat analogous to the differences between functional and organic disturbances.

If we remember that the only behavior which is inherently natural to any individual is instinctive and primitive and also that the instincts, with their accompanying emotions, are quantitatively different in each individual, we will have some basis of understanding why it is that the emotional reactions to environmental situations (with the lessons to be learned by the experience) differ so markedly one from another in any group. Why it is that the testimony given by

one individual stresses one thing while that of another emphasizes a different element in the same situation.

Matters could not well be otherwise, else we would all be alike as "two peas in a pod"; consequently our character differences rest upon the quantitative differences in the inherited instincts with their accompanying emotions.

With this knowledge before us and with a group classification made between the organic defective with his accompanying psychopathic behavior and the purely functional psychopath where behavior alone is involved, our problem is much simplified and our therapeutic efforts should be more exact. Treatment need not be so empirical as at present where each worker pursues an independent path of his own choosing.

In the true defective only a certain degree of progress is possible. If the upper limit of such progress lands him well within the public "safety zone," well and good. If such goal is not possible, segregation is all that can be done, and under such grouping he must be handled.

In the case of the functional psychopath, treatment becomes a matter of reëducation, but not in a situation where he is confined only a few hours a day. The individual should be kept in the new surroundings, to which he has been sent, and where a real effort is made to understand him and his difficulties, and solutions of his personal problems are worked out with him.

We should bear in mind that in our efforts to reeducate the individual we have not only to change his whole attitude toward life, but we also have to overcome stereotyped, habitual and automatic behavioristic activities which have become "fixed" from long usage.

THE RADIO KNIFE IN DERMATOLOGIC SURGERY*

By H. J. Templeton, M. D.
Oakland

Discussion *by Harry E. Alderson, M. D., San Francisco; Sumner Everingham, M. D., Oakland; Sutten H. Groff, M. D., Long Beach; William L. Clarke, M. D., Philadelphia, Pa.; George Austin Wyeth, M. D., New York, N. Y.*

THE radio † knife is an instrument which divides tissue by means of an electric arc which is formed at the point of contact between knife and tissue. It has been used mostly in the surgery of the malignancies, especially by Doctor Clarke of Philadelphia and Doctor Wyeth of New York. Very little has appeared in the literature in regard to this modality. Mention has been made of it by Wyeth, Clarke, and Ward in articles dealing with electrothermic therapy in general. Ward [1] has given an excellent description of the physics of the modality, and has shown microphotographs of tissues cut by it. Hollander [2] has recently written an article concerning its use in dermatology. I have been using this knife for about two years in my private practice and on my service at the Alameda County Hospital, where considerable cutaneous surgery is done. It has worked so satisfactorily that I have come to look upon it as almost indispensable.

PHYSICS OF THE CURRENT

The current employed is a bipolar one with a voltage of about 500 and a milliamperage of about 5. The characteristic feature of the current is that it has a very high frequency, varying from one and a half to six million cycles. The waves are of the undamped type. This type of current can be produced by an instrument employing radio tubes exactly similar to those used for radio telephone transmitters. The original instruments and some of the present ones are of this type. Certain electric difficulties such as burnt-out tubes, failure of the tubes to oscillate, choking of the tubes during operation, have resulted in the development of an apparatus which eliminates the tubes entirely, and depends upon foolproof spark gaps, coils, and condensers to produce the high frequency current. An advantage of this type of construction is that it enables the same outfit to be used for electrocoagulation or electrodesiccation merely by throwing a small switch to the modality desired.

When the knife is brought in contact with tissue an arc is produced which disintegrates the tissue ahead of the knife as it moves along. *The cutting is done by this arc and not by the knife itself.* The arc does this by a process of cell destruction known as molecular disintegration.

METHOD OF USE

An anesthetic is always necessary for operations with this knife. If a local anesthetic is used the area should be blocked rather than infiltrated. Gas-oxygen or chloroform are preferable when a general anesthetic is indicated on account of the danger of the arc igniting ether or ethylene.

One of the wires is attached to a piece of lead foil measuring about six by eight inches. This is fastened to the patient's moistened skin at some site remote from the operative field. The usual plan is to place the lead foil beneath the buttocks and to hold it in place by a towel encircling it and the body. The other wire is attached to the knife. This "knife" is generally a flexible piece of steel about 3 centimeters long, 3 millimeters wide, and 1 millimeter thick. It is held in an insulated handle.

The surgeon should wear rubber gloves to protect himself from shock. I formerly wore two pair of ordinary surgeon's gloves, but now wear only one pair, as I determined by experiment that the voltage used will not penetrate the usual glove. I have never received a shock while operating. A foot switch is of great value in turning the current on and off.

When the knife is brought into contact with the skin an arc is formed which cuts as rapidly or as slowly as the knife is moved. One's first inclination is to attempt to cut with the dull blade just as one would with a scalpel, but this is not desirable. Gentle pressure will carry the knife and arc through the skin with an ease and speed superior to the scalpel. As the arc cuts through the skin the lymphatics and smaller blood vessels are sealed. This lowers the danger of metastasis. More effective blockage of blood and lymph chan-

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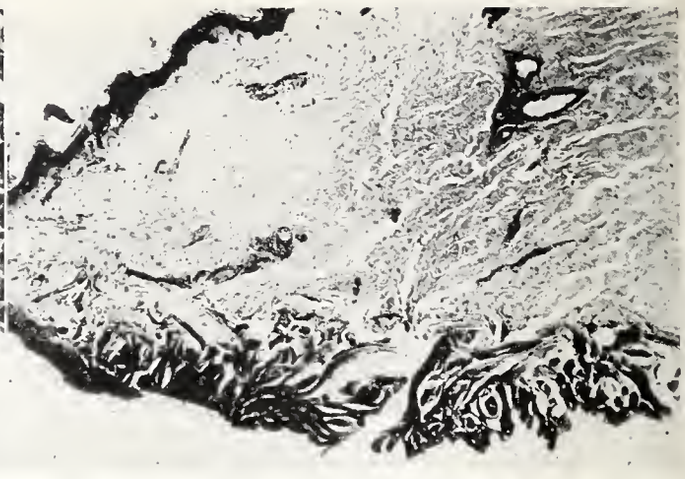
* Read before the Dermatology and Syphilology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

* Laboratory work from the laboratories of the Samuel Merritt Hospital, Oakland. Courtesy of Dr. Robert Glenn.

† The terms "radio knife," "endothermy knife," "acusector," and "high frequency cutting knife" are synonymous.



Showing different depths of coagulation when knife is moved slowly or rapidly
Fig. 1.—Knife moving slowly Fig. 2.—Knife moving rapidly

nels is obtained when the knife is moved at a low rate of speed (Fig. 1). I have often removed cutaneous growths without the use of hemostats or ligatures and with practically no loss of blood. This feature is a great convenience in office surgery.

When deeper structures are invaded the larger bleeders are not controlled. Small bleeders can be controlled by turning the switch to coagulation and touching them with the knife for a second or two, thus coagulating them, but vessels of any size should be ligated.

The knife cuts best when the field is kept dry. Also when the area to be cut is kept somewhat taut. After a few minutes' use, the blade becomes coated with a "gummy" layer. This is a nuisance, but is easily scraped off. Some special alloy knife will probably be perfected which will not gum up. When muscles are cut there is an objectionable twitching. It is interesting to note that the knife differs from the actual cautery in remaining cold throughout the operation.

After the operation has been completed the wound can be closed and will heal by first intention, just as if made by a scalpel. However, in closing these incisions I have been playing safe by placing my sutures somewhat close together and leaving them in longer.

A surprisingly gratifying feature of this method is the relative absence of postoperative pain. This is probably due to coagulation of the ends of the severed nerves.

SOME OBJECTIONS TO THE METHOD

Some surgeons have objected to the great speed with which this knife cuts, but this objection can be met by practice and by reducing the amount of current used. It will not cut bone, nor does it cut quite so efficiently in fatty tissue, the fat being a poor conductor of electricity. It cannot be used for "blunt dissection," but a blunt instrument can be kept at hand for this. I know of no way of obviating the annoying twitching produced by this knife when muscles are cut.

EXPERIMENTS

Experiment 1. To demonstrate healing by first intention.—An incision was made through the skin of a rabbit with the blade of the radio knife moving rapidly. The wound was then sutured. Twelve days later it was seen to have completely healed. The stitches were removed and a portion of the healed incision line was removed for microscopic study. The normal rabbit skin is seen at the right of the photograph in Fig. 3. The healed incision line is seen at the left of the photograph in Fig. 3.

This experiment shows that healing by first intention occurs in rabbit skin within twelve days following experimental incision with the radio knife.

Experiment 2. To demonstrate the width of the zones of coagulation when the knife is moved slowly or rapidly.—A basal cell epithelioma was excised with the radio knife. On one side of the growth the blade was moved rapidly at the rate of approximately three-fourths of an inch per second. The width of the resulting coagulated zone is seen in Fig. 2. On the other side of the growth the knife was moved slowly, at the rate of approximately one inch in five seconds. The width of the resulting coagulated zone is shown in Fig. 1.

This experiment demonstrates that the zone of coagulation laterally from the incision is roughly inversely proportional to the speed at which the knife is moved. The lesson to be learned from this experiment is that one should move the knife

Fig. 3.—Experimental incision of rabbit's skin. Incision healed by first intention in fourteen days

slowly when a malignant tumor is being dealt with. By so doing, a wide zone of blocked lymphatics will be left to guard against metastasis. If cosmetic results are paramount and the lesion benign the knife should be moved rapidly. This will favor healing by first intention.

COMMENTS ON AUTHOR'S CASES

Three enormous carbuncles of the neck were removed in toto. Healing proceeded rapidly and with very little pain.

A tumor of the skin of the chest wall (fibromyxoma) was removed, the wound sutured and perfect healing by first intention followed.

A Pagetoid epithelioma of the buttock measuring about 4 centimeters in diameter was removed, leaving an opening measuring 6 by 8 centimeters. I felt that it would be impossible to close so large a wound, but by undermining the skin and by using many deep tension sutures the edges were approximated. To my surprise the wound healed by first intention.

A number of pigmented moles have been excised. Healing was uneventful except in two cases. In one a stitch infection delayed union. In another a keloid developed in the incision, but the presence of similar keloids in the stitch holes proved that the cutting current was not a causative factor.

I have removed several warts this way, but believe that electrodesiccation is superior.

Several basal cell epitheliomas have been excised with this current, but my impression is that in these cases electrocoagulation, electrodesiccation or radiation are generally preferable. A large basal cell epithelioma was removed from a patient with diabetes. Two days after the stitches were removed the wound opened and later healed by granulation.

Two squamous cell epitheliomas of the dorsum of the hand have been removed and healing followed by first intention (Fig. 4). Four squamous cell epitheliomas of the lip were removed by a combination of electrocoagulation and radio knife. The growths were first completely coagulated and then the coagulated mass was excised with the radio knife. I believe that this is much safer than radio-knife incision alone.

Fig. 4.—Illustrating healing by first intention. Photo take twenty-one days after radio-knife excision of epithelioma

Working with Doctor Fern a vulvectomy was done for leukoplakia. Doctor Fern commented on the small amount of bleeding and the eliminating of ties. Healing was uneventful.

Dr. Lemuel Adams and I performed a hemiglossectomy for cancer of the base of the tongue. Due to an unavoidable loss of time following the initial operation for ligation of the lingual artery the blood supply had become reëstablished and considerable hemorrhage resulted. I believe that it would have been better to have electrocoagulated the whole half of the tongue prior to the radio-knife excision.

Dr. S. Everingham has borrowed my outfit for two radical amputations of the breast. His impression was that this method was superior to the scalpel.

I am routinely removing biopsy sections with this knife, believing that it seals the lymphatics and lowers the danger of metastasis in this procedure.

CONCLUSION

The radio knife has proven a valuable aid to me in dermatologic surgery, especially in the removal of cutaneous malignancies. It does not supplant, but rather supplements, other established procedures.

3115 Webster Street.

REFERENCES

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DISCUSSION

HARRY E. ALDERSON, M. D. (490 Post Street, San Francisco).—Doctor Templeton has given us an interesting demonstration of a useful new instrument. One should bear in mind that the action of the radio knife is rapid and, therefore, special care must be exercised in its use. The coagulating action of the current is of great value in preventing small hemorrhages, but one must remember that larger vessels are not closed so easily. Secondary hemorrhages do occur. A local electrical concern (Bush Electric Company) has devised a very useful electrocoagulation handle for Bard-Parker blades, which I am finding to be of value in certain cases. The action is not exactly that of the radio knife, however. With elimination of the radio tubes the knife is more dependable and will be found to be a valuable addition to one's armamentarium.

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SUMNER EVERINGHAM, M. D. (1904 Franklin Street, Oakland).—Doctor Templeton in his very able paper has called attention to the so-called "radio knife," or "acusector" (Kelly), in its application to neoplasms of the skin. As used in general dissection of deeper tissues, in my own experience, I have been quite impressed with its value.

We all are on the alert for any agent that will be of aid in combating malignant growth, and it is felt that this knife has a definite field of usefulness.

Several advantages have been claimed for the radio knife among the most notable being the sealing of lymphatics against dissemination of cancer cells during operative manipulation. This very pertinent question is difficult of proof, since we are at a loss to know when or why metastasis to proximal or distal parts takes place. It has been stated that since wounds heal per primum after use of this electrothermic agent, there can be little actual tissue destruction or closing

of lymphatic channels. However, from inspection of sections illustrated in this article there seems little doubt that the lymphatics would be more definitely interrupted than after sharp dissection.

It is remarkable how little oozing there is from its use. Large vessels need ligatures and, as stated, should be sectioned between clamps, as the knife does not work well in a moist field. Slightly more distance must be left between hemostats, as the current is dispersed through the clamp if in contact. Smaller vessels can be controlled by touching the bleeding point with the coagulating current or by bringing the electrode in contact with the hemostat.

Primary healing is the rule rather than the exception after such incisions. Another very striking advantage over the sharp dissection is the very definite diminution of postoperative pain. Apparently the nerve filaments when divided are dehydrated much the same as from absolute alcohol to the larger trunks. At any rate the degree of postoperative comfort is quite remarkably greater after use of this method.

There is a relative danger in the possibility of injuring important vessels and nerves when the knife causes contraction of muscle in their proximity. This can be obviated if the muscle is carefully isolated before section or carried well out of the field by retraction. We have had little or no trouble in carrying out our dissection well up in the axilla and about the brachial plexus using this agent after the muscle had been divided.

The radio knife has a definite field of usefulness in general surgery if used with the care and meticulous treatment of tissues needed in any surgical procedure.

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Sutten H. Groff, M. D. (408 Kress Building, Long Beach).—As I am the originator of the diathermy knife referred to by Doctor Alderson, I would like to say a few words in reference to it and to the radio knife. I have been working with the diathermy knife for the past seven years in the treatment of malignancies. Three years ago I operated on two breast cases with the cutting current. I regret its use today. One patient died and the other patient was over eight months healing. I subsequently operated on the other breast in this patient, and the healing process was complete in three weeks. These were bad cases, but I am convinced the results would have been different with diathermy.

For removing biopsy sections in benign tissue I think the radio knife may be ideal. In dealing with malignant tissue I think it should not be considered, for the following reasons: (1) It acts on the same principle as the acetylene torch cating through a steel girder; in severing the tissue the arcing causes a dissemination instead of a scaling of tissues. This is why the technique of coagulation by diathermy and later removal with the radio knife is suggested by the men who use it. (2) In breast amputations or where subcutaneous fatty tissue is encountered the radio knife works poorly, while the diathermy knife will give a clean field with no bleeding and positive sealing of tissues. (3) With the radio knife and diathermy coagulation combined, it is always necessary to keep in mind while operating which current is in use. Coagulation with the radio knife gives a severe reaction, which cannot be estimated at the time of operation. Near important structures this might cause untoward complications. (4) The mass can be dissected out with the diathermy knife with our technique and with sufficient coagulation and sealing of the tissues, and with a saving of time. (5) The principle of the diathermy knife, "The current density varies as to the square of the surface applied," gives a technique with a light current or low milliamperage, which is more readily controlled and safer to work with than forcing a heavy current and heavy arcing through the tissues, especially near important structures. (6) With the diathermy knife I can easily do a radical breast amputation complete with no sutures except skin-tension sutures. (7) With the light current required there is no shock or perceptible shorting from the patient to the bare or to the gloved hand of the operator.

A word as to the healing. No more scarring follows the diathermy than the radio knife. In making biopsy sections healing by first intention will be found about the same, with proper technique. In work near malignant tissue we should require a little coagulation and the skin flaps will heal a little slower, but if in apposition they will heal by absorption of the slough and a substitution of scar tissue.

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William L. Clarke, M. D. (2215 Walnut Street, Philadelphia, Pennsylvania).—No two men employing high frequency currents in various ways will ever agree upon details of application, though all may be doing excellent work because of their familiarity and expert employment of their own technique. My experience with the radio knife indicates that its field of application is but limited, there being other applications of high frequency currents that can be used to greater advantage. I do not think it will replace the scalpel in such operations as amputation of the breast and resection of axillary glands. While it is quite true that a very clean operation may be performed by one expert in the use of this knife, there is danger of sustaining the applicator too long at certain points. Then the wound will not heal by first intention, but a gaping wound will result, to the embarrassment of the operator and to the disappointment of the patient. The radio knife does not seal the lymphatics sufficiently to obviate the possibility of metastasis, for the reason that it is very superficial in action; circulation is only slightly impaired, as evidenced by the healing by first intention in a majority of the cases. It certainly cannot influence any metastasis that has already taken place. While there is less capillary oozing, it does not in any way relieve us of the necessity of ligating the larger vessels. I have had gaping wounds following the use of the radio knife, and I know gaping wounds have occurred many times in the experience of others. Of course I realize that, in a measure, this result is a matter of technique, but personally I have discontinued using the radio knife in breast amputations and in resections generally.

It may be desirable to employ it in making biopsies, but in my own practice I have taken a section only when prepared to make a frozen section study at once. Then I see no advantage of the radio knife over the scissors or the scalpel, providing the base is immediately desiccated to stop hemorrhage and, in a more efficient way, seal lymphatics, although there is very little danger of stimulating metastasis in the short period of time elapsing between the taking of the section and the operation whatever it may be.

I disapprove of the radio knife in cutting out malignant lesions that have been desiccated or coagulated. I prefer the scissors, curette, or scalpel for this purpose, as it gives a better idea of the character of the base, which is important in determining whether malignant tissue remains or not. In case of incomplete work the first time, electrocoagulation or desiccation may be employed with a greater degree of intelligence and accuracy than if the radio knife were employed to cut out the coagulated area. One can detect the resistance of the tissues and make a more intelligent determination whether the disease exists or not with the instruments mentioned than with the radio knife, which will cut through cartilage and fibrous tissue. Therefore mistakes are more likely to occur in the recognition of the tissues characteristic of malignant disease.

I do not approve of the radio knife in the treatment of cancer of the lip, for here it is necessary to suture the same as though a classical scalpel operation were performed. I prefer to desiccate or coagulate, permitting the wound to heal by third intention. There is less deformity and, in my experience, less danger of recurrence.

I believe that no one should treat malignant disease in any form without having at his command radium, x-ray, operative surgery, and electrothermic

methods, for all have their uses and should be used alone or in combination, to suit the requirements of the individual case. There are exceptions, however, in which the radio knife can be used for resection to advantage. In cases where there is a very hemorrhagic area the mass may be quickly removed by this method, but it should be followed, in most cases, by electrocoagulation, since the action of the radio knife current is quite superficial. Indeed, if it were not it would defeat the purpose of the knife.

I think, generally, the desiccation method is better in dermatologic practice than the radio knife. Desiccation is subject to perhaps greater control. The amperage is low and the voltage high. Therefore there is less secondary inflammation. Keloids are certainly more likely to occur with a high amperage current than with a low one, and generally the cosmetic effect is superior from desiccation.

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George Austin Wyeth, M. D. (667 Madison Avenue, New York).—Nothing is more immediately important than the spread of definite knowledge concerning recent advances in the application of electrothermic methods to the eradication of malignant conditions.

Since high frequency currents are a highly destructive force, no one should undertake to use them in surgery or in the treatment of skin conditions who has not been properly trained in that use. This training is not difficult to secure, and the skill it gives to the surgeon is well worth the effort needed to acquire it.

The best machine for cutting is one based on radio frequency. The old spark-gap machine was experimented with by DeForest more than twenty years ago and failed to stand up. Not until the perfected radio-tubes instrument was offered did the profession have an adequate machine. I am still using my original endotherm, which is now over four years old.

Rubber gloves for the operator are not needed. There is no shock to the user of a well-made machine. Such an instrument will provide three distinct currents which are interchangeable at will: the monopolar which desiccates or dehydrates the tissues (the current which Doctor Clarke has so ably developed); the bipolar, or coagulating, which is valuable as causing a more widespread destruction than does the monopolar current; and, finally, the cutting current or endotherm knife.

Dr. Howard A. Kelly of Baltimore was one of the first to welcome the advance offered by this cutting current. Many papers read before various medical and surgical gatherings and published in our professional journals attest his praise of the new method and his success in its use. He has said: "I give this (the endotherm knife) the leading place and decided preference in my daily work, relegating the scalpel to a subordinate position."

Word also comes from London that the great surgeon, Handley, is now using the cutting current in his breast work. It is recommended on the ground of time saved during the operation; decreased danger of mechanical implantation because lymphatics are sealed off as it cuts; decreased danger from hemorrhage; soft, pliable scar following healing by first intention.

The endotherm knife properly controlled and properly used cuts fatty tissue, and the axilla can be cleaned out with it as well or better than with the scalpel. Primary healing is in direct relation to the skill used in making the incision. If the operator stops and allows the current to arc between the cut surfaces he will carbonize the tissue and prevent proper healing, for carbonized surfaces will not unite. But that is not the fault of the method; it comes from faulty technique.

The best technique in performing hemiglossectomy calls for a preliminary ligation of the vessels of the neck at time of operation and a line of coagulating necrosis drawn in healthy tissue around the malignant area. The cutting current is then switched on and the incision made through the coagulated path, obviating hemorrhage and shock.

Of the extension of electrosurgery's usefulness in removing brain tumors we have ample testimony in an article by Dr. Harvey Cushing of Boston, written for the December, 1928, number of *Surgery, Gynecology, and Obstetrics*. The new method is so rich in benefits to patient and operator it needs only to be sincerely studied and carefully employed in order to be adopted permanently.

PROTOZOAL INFESTATIONS*

A GROUP STUDY—SOME NOTES ON STOVARSOL TREATMENT

By H. E. Butka, M. D.
Los Angeles

Discussion *by L. M. Boyers, M. D., Berkeley; R. J. Pickard, M. D., San Diego.*

DURING recent years numerous authors have given us a wealth of material and statistics endeavoring to prove or disprove the pathogenic rôle of the intestinal protozoa. The controversy has become quite acute.

VIEWPOINTS OF DIFFERENT OBSERVERS

On the one hand we find an author who states that "in California, at any rate, the harmless, possibly beneficial fecal scavenger is sometimes not only reviled but made a source of profit to its detractors." [1]

On the other hand many authors, including Reed, Kofoid, Kessel, Kirenen, Pickard, and Boyers are firmly convinced that most of the protozoal parasites infesting the human bowel are at times pathogenic. Quoting from these authors we find that Kirenen [2] is convinced that "experience shows that in the great majority of cases the carrier remains quite healthy and we must come to the conclusion that it is the normal function of the normal epithelium that holds the amebae in check. If, however, the normal resistance lessens (for instance, by an indigestion or by other illnesses which interfere with the function of the intestines) the amebae grow out into bigger forms, and irritation results giving the symptoms of simple colitis and dyspepsia." Reed [3] states that "it is hard to believe that any of these organisms (ciliates, flagellates, and amebae) can live and multiply in the human host without the possibility of their parasite host's balance being at times disturbed and symptoms resulting." Experience "makes me doubt if they ever infest man without increasing the health hazard of the host." Even some of the flagellates are accused of producing symptoms and Kessel [4] states that "*Penta trichomonas* have been found repeatedly in patients suffering from a diarrhea usually of a chronic type." From Thomas and Baumgartner [5] we quote: "While some men believe that *Giardia* is nonpathogenic, still of some of the worst cases of parasites (in our series), three at least, have been caused by *Giardia*." Pickard [6] believes that

* Read before the Pathology and Bacteriology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

CHART 1.—*Present Survey Compared with Others*

Survey Location			Number Examined	Positive Percentage	Entameba Histolytica	Entameba Coli Group		Endolimax Nana	Iodameba Bütschlii	Chilomastix Mesnilii	Giardia Intestinalis	Trichomonas Hominis	Craigia Hominis	Blastocystis Hominis	Misc.
						Ent. Coli	Councilmania Lafleuri								
Butka	Hospital Group	Medical Students	75	50.6	10.6	4	34.6	9.3	5.3	9.3	4	1.3	1.3		
		Adults	206	17	2	1	7	1.5	.05	4	1.5	2.5			1
		Children	102	7		1				2	4	1			
Wright—U. S. Vet.			1341	58[1]	7	16.5		17.9	3.6	2.5	7	1.9		27.8	
Kaplan Williamson Geiger		Chicago	720		2.2	17.4		1.39	4.2	1.3	5.3	1.1			
Kessel Svensson	China	White	221	40	26.5	11.6	14.5	16.5	3.2	10	3	2.8			
		Native	816	60	29.5	11.7	19.2	40.1	13	6	10	4.5	0.5		
Lynch—Texas			1040	23[2]						7.5	2.3	12	0.5		3.2
Thomas Baumgartner		N. Y.	1122	44.5	1.07	17.83		17.74		21	2.4	0.26			
Kofoid et al.	Soldiers	Overseas	1206	66.5[3]	10.8	27.3		27.1		5.8	5.3	0.6		30.5	0.6
		Home Service	300	59.2[3]	3	20.4		30.7		3.3	6	2.3		33.3	1.0

[1] Includes blastocystis. [2] Flagellates only. [3] Includes metazoa and blastocystis.

"conjoint life is a test of strength between its participants. The relationship is seldom a true symbiosis, of benefit to both; practically always one party is the giver, and even when he gives from excess he must always be on guard lest his partner, flourishing, does not take from his need. . . . A change in environment changes their relative strength, so that from a benign commensalism, in which the lesser lives upon the waste of the greater, they may pass into a parasitism causing the disease or death of one of the participants. Thus a parasite ignored in its weakness may attack from strength, or from numbers, when conditions favor it." Kofoid [7] thinks that our main difficulty has arisen from attempting to carry over ideas in bacteriology and applying them to the domain of parasitology, and states: "We have been highly trained in thinking from the bacterial point of view since the days of Pasteur, and poorly trained in thinking from the point of view of protozoan infection." Pickard [6] insists that "the summary dismissal of species which are probably not pathogenic, as harmless, is not a 'scientific' attitude. . . . Any such toxic products although not reabsorbed would be a menace, so that the harmlessness of these organisms must be proved rather than their pathogenicity defended."

SYMPTOMS

The symptomatology is obscure and "when we recall the possible methods of symptom production it seems that a pathognomonic syndrome could not possibly occur."[3] . . . "The symptoms are diverse, remote, numerous, and often bizarre." "Almost any variety and degree of neurasthenia, physical depression, constipation, loss of weight, anemia, digestive troubles, vague aches, and pains, and indefinite ill health may be associated with amebiasis and disappear when the ameba is eliminated."

Discussing the so-called harmless amebae, Hall and Reed [8] state that *"Endameda coli,* with other intestinal protozoa may be potentially pathogenic," and the ways by which these parasites produce pathology are given as follows:

1. "By direct tissue damage to the mucosa.
2. "By irritation causing reflex symptoms in the gastro-intestinal tract or elsewhere.
3. "By disturbance of digestive processes resulting in intermediate or abnormal protein bodies which may be toxic.
4. "Disintegration or cytolysis releasing toxins for absorption.
5. "By possible emigrations from the intestinal tract to other portions of the body."

The symptoms usually associated with protozoal infestations are: fatigability, loss of physical alertness, constipation which may alternate with diarrhea, mucus and blood in the stools, bowel consciousness but no actual pain, flatulence, gastric disturbance, colonic tenderness, neuritic symptoms, joint symptoms, cough and expectoration, tachycardia, poor vision and iritis, hepatitis, abscesses, etc.

Boyers and Kofoid [9] declare that we are "dealing with a disease entirely as protean as syphilis and 'undramatic in behavior, subtle in onset.' The dearth of the usual findings to account for the patient's symptoms should make one suspicious of an amebic infection, especially if the symptoms are vague in character."

REPORTS OF OTHER WORKERS

Referring briefly to Chart 1 we note in a number of surveys made in various portions of the United States and in other countries that the percentage

CHART 2.—*Protozoal Infection Survey of 75 Medical Students*

PARASITE	ASSOCIATION—OTHER PARASITES			Total No. Infected	% of Infected Group	% of Total No. Examined
	Single	Double	Triple			
Entameba histolytica	2	5	1	8.0	21.0	10.6
Entameba coli	1	2	0	3.0	7.9	4.0
Councilmania lafleuri No. 1	7	8	3	18.0	47.3	24.0
Councilmania lafleuri No. 2	3	3	2	8.0	21.0	10.6
Endolimax nana	3	1	3	7.0	18.4	9.3
Iodameba bütschlii	1	3	0	4.0	10.5	5.3
Chilomastix mesnilii	4	3	0	7.0	18.4	9.3
Giardia intestinalis	1	1	1	3.0	7.9	4.0
Trichomonas hominis	1	0	0	1.0	2.6	1.3
Craigia	1	0	0	1.0	2.6	1.3
Total	25	24	10	59.0		

Total number of students infected—38 Percentage infected—50.6%

of the population infested with one or more of the protozoan parasites is extremely high. Wright in examining a group of veterans found only 42 per cent free from protozoan parasites, but from his charts we must conclude that the *Blastocystis hominis* was included in the infested group. Kessel and Svensson in China found 40 per cent of the white and 60 per cent of the native population harboring parasites. Lynch in a survey made in Texas found 23 per cent infested with the protozoan flagellates.

MEDICAL STUDENT GROUP

The present study was begun during the spring of 1927 and covered a single class of medical students, then in their Junior year, and the technicians who assisted in conducting the course in laboratory diagnosis. During the course on stool analysis, each student was required to furnish sample specimens and, following the class period, these were reëxamined in my laboratory. The writer made a careful search of the specimens suspected of harboring parasites by the iodin-eosin method, followed by the iron-hematoxylin stain. To his surprise thirty-eight students, out of a group of seventy-five examined, were found to harbor one or more parasites each, or a per cent of 50.6 on a single examination.

HOSPITAL GROUP

A second study was made of the hospital patients having stool examinations during the past two years. Here our results were only 13.6 per cent positive, even with multiple stool examinations. It is surprising to find so marked a difference in the two groups. These findings were discussed in my previous paper and would indicate that preparation for hospitalization included certain procedures which materially decreased the number of parasites present in the stools at least temporarily.

PARASITES FOUND

Referring to Chart 2 we find an analysis of the type of parasites found, the number presenting single, double, or triple infections, and the percentage as compared to the number of positives and the total number of persons examined.

Comparing these findings with the results of other workers a similarity in the percentage infested with the various parasites is noted, although the number of those harboring the *Entameba histolytica* is higher than in most surveys in the United States.

The medical students who were examined belonged to the first class of students entering the medical school on the "coöperative basis." This plan provides for practical training in various hospitals and laboratories for a period of time equal to the time spent in school work. The close contact with sick patients may have increased the number of protozoal infections. However, a single stool specimen only was examined. James, Kofoid, and others estimate the number of positives obtained on a single examination as ranging

CHART 2-A.—*Protozoal Infection Survey of Hospital Patients*

Parasites	Association with Other Parasites			Total No. Infected	% of Total No. Examined
	Single	Double	Triple		
Entameba histolytica	0	3	1	4	1.4
Entameba coli	1	2	0	3	1.0
Councilmania lafleuri	8	5	2	15	5.0
Iodameba	0	0	1	1	0.6
Endolimax nana	1	1	1	3	1.0
Chilomastix mesnilii	4	5	1	10	3.3
Giardia	6	1	0	7	2.3
Trichomonas hominis	6	0	0	6	2.0
Miscellaneous	3	0	0	3	1.0
Total	29	17	6	52	

Total Number Examined.....308
Number Infected.....42
Percentage of Infected.....13.6

CHART 3.—*Influence of Residence*

Location	Infected Group	Parasite-Free Group
Tropics	10	8
U. S.: West	6	8
South	4	4
Central	13	13
East	5	4

from 40 to a maximum of 75 per cent, depending on the skill of the worker and the time available. Estimates on this basis would indicate that at least 70 per cent of this group harbored parasites.

EFFECT OF RESIDENCE

Chart 3 is an analysis of the entire group of students to determine, if possible, whether place of residence would account for the large number of persons affected. There is, however, little difference as to residence in the infested and non-infested groups. A few more students are found in the infested group with a history of foreign residence.

SYMPTOMS PRODUCED

Upon obtaining the consent of the infested group for experimentation, I first attempted to determine the extent of symptoms. The results are listed in Chart 4. Of this group only six, or 18 per cent, stated that they were free from symptoms. Sixty-six per cent suffered from abdominal discomfort, while 27 per cent had actual tenderness along the course of the colon. Fifteen per cent suffered from diarrhea, while 48 per cent reported constipation.

EFFECT OF STOVARSOL

Following this preliminary survey it was determined to study the value of some of the anti-protozoal remedies. Perusal of many recent articles led me to use stovarsol in an attempt to determine its real value. The entire group of students was placed on a treatment consisting of the administration of stovarsol alone. The dosage prescribed was one-fourth gram tablet three times daily for twelve days, making a total of nine grams of this preparation.

CHART 4.—*Symptoms Found in Infected Group*

NUMBER REPORTED: 33	
Diarrhea	5
Constipation	16
Mucus in stool	3
Blood in stool	1
Gaseous distention	23
Abdominal discomfort	22
Colonic tenderness	9
Arthritis	2
Neuritis	5
Skin—acne, etc.	9
Eye conditions	9
Miscellaneous symptoms	15
No symptoms	6

CHART 5.—*Effects of Stovarsol Medication*

Dosage: 36 tablets, ¼ gram each; 3 tablets daily for 12 days. Immediate effects of medication as follows:

NUMBER TAKING TREATMENT: 30		
		Per-c'tage
Severe headache	7	23.3
Malaise	21	70.0
Diarrhea and colonic tenderness	18	60.0
Loss of appetite	10	33.3
Marked loss of weight	3	10.0
Temperature above 100° F.	8	26.6
Rash (resembling measles)	2	6.6
Confined to bed	4	13.3
Number with toxic symptoms sufficiently annoying to prevent completion of course of medication	14	46.6

The effects of the stovarsol treatments are outlined in Chart 5, which is an analysis of the thirty students reporting, following the administration of the drug.

It is interesting to note that of the thirty students taking the course of treatment, fourteen, or 46.6 per cent, suffered with sufficiently annoying symptoms to make it advisable to discontinue the course as prescribed. Eight students, or 26.6 per cent, developed a temperature above 100 degrees Fahrenheit, and two suffered with a toxic rash. Four were confined to their beds for short periods of time, while eighteen, or 60 per cent, suffered from diarrhea during the course of the treatment. These results are sufficient proof to indicate that stovarsol is a powerful drug and must be used with caution.

The reports of other workers would indicate a variable toxicity, one report recording three cases of toxic erythema out of a total of eight patients treated with a French preparation, while another report of a larger series states that about 6 per cent of patients receiving stovarsol for seven days developed a toxic rash. In my series this percentage was 6.6

Having determined what precautions were necessary in the use of this powerful drug, a stool specimen for study was requested about two weeks following the completion of treatment. Only thirteen specimens were returned at this time. One only was found to be positive, and in this instance treatment was discontinued before the completion of the course. The examination at this time indicates definitely that stovarsol is

CHART 6.—*Stool Examinations Two Weeks Following Stovarsol Administration*

Number Examined	13
Positive	1=7.6%

CHART 7.—*Symptoms Following Treatment*

NUMBER REPORTING FOLLOWING TREATMENT: 28		
		Per-c'tage
No Symptoms	10	35.7
Improved	8	28.5
Total Improved	18	64.2
No change	9	32.1
Worse	1	3.5
Total Unimproved	10	35.6

sufficiently powerful to clear the intestinal tract of active amebae within a short period of time.

SYMPTOMATIC IMPROVEMENT

Answers to a questionnaire as to the change in symptoms following the course of treatment were next obtained. Of the twenty-eight reports obtained at this time, ten, or 35.7 per cent, gave no symptoms; another group of eight, or 28.5 per cent, reported marked improvement, making a total of 64.2 per cent of the students showing definite improvement following the course of treatment. Nine students, or 32 per cent, reported no change; while only one student reported that his condition was definitely worse, making a total of 35.6 per cent unaffected by the medication.

RESULTS OF REËXAMINATIONS FOLLOWING TREATMENT

Final stool examinations were made from two to eight months following the completion of the course of stovarsol. Of the fifteen students completing a full course of treatment, two were found to harbor parasites, making a percentage of failure of 13.3. Of the fourteen students discontinuing treatment before the completion of the twelve days' medication, seven were found to harbor parasites, making a percentage of failure in this group of 50 per cent.

Chart 8 presents a list of the parasites resisting treatment. Representatives of all of the groups of protozoan parasites are found, so that no conclusion can be drawn as to specificity of the stovarsol for individual members of the group.

SUMMARY

Considering the whole group, the results are quite encouraging in the temporary eradication of the parasites, and a fairly permanent removal in 69 per cent of those treated. Comparing these results with the reports of other workers, we find Silverman reports 77 per cent cures from a group of forty-six cases. Brown reports sixty-three cases of stovarsol administration with six known recurrences. Willmore and Martindale report thirty-seven cures out of a total of forty cases treated by a combined method in which stovarsol was prominent, but further states[10] that this is "a figure which later experience may show to be far too optimistic."

CHART 8.—*Results of Stool Examination Made Two to Eight Months Following Stovarsol*

TOTAL NUMBER SENDING SPECIMENS FOLLOWING MEDICATION: 29	
Positives	9 = 30.6%
Full course	2 = 6.8%
Partial course	7 = 23.8%

Analysis of Positives

(a) Number taking full course	15
Number of failures	2=13.3%
Parasites Resisting Treatment—	
1st case	C. laf. No. 1 Chilomastix mes.
2nd case	E. hist.
(b) Number taking partial course	14
Number of failures	7=50%
Parasites Resisting Treatment—	
1st	Chilomastix mes.
2nd	E. nana
3rd	Iodameba büts.
4th	C. lafleuri E. craigia
5th	E. nana
6th	E. histolytica
7th	C. lafleuri
Number of cases showing parasites following medication, in which a lessened number of types were found	5

Reviewing briefly the results of my experience with stovarsol I believe, with Johns,[11] that "we possess in this synthetic arsenical compound a truly specific amebicidal drug. The astonishing rapidity with which both vegetative and encysted amebae disappear from the stools, coincident with the complete relief of dysenteric symptoms, is unparalleled in my experience by any other specific therapeutic drug."

While I realize that this study is not conclusive, progress can only be made by continued study of the parasites, with comparisons between the findings of the various workers. In this instance the coöperation of a group of highly trained men while completing their third and fourth years in medicine has seemed to me to be of sufficient value to add my findings and conclusions to the already voluminous literature on the subject.

CONCLUSIONS

In conclusion I wish to reiterate:

1. That a high percentage of individuals are harboring one or more varieties of the intestinal protozoan parasites.

2. Approximately 10 per cent of our series harbored the *Entameba histolytica,* a parasite that is known to produce serious pathologic changes not only in the intestinal tract, but also in the liver,

eyes, skin, gall bladder, and other organs of the body.

3. Many parasitologists now believe that each of the intestinal amebae may produce symptoms under favorable circumstances.

4. The protozoan flagellates may also be productive of obscure symptoms.

5. Stovarsol is apparently a specific for the intestinal amebae.

6. Stovarsol is a powerful drug, and untoward symptoms are frequent if the dosage is continued for a period of more than seven days.

7. A toxic erythema, resembling measles, occurs in at least 6 per cent of all cases treated by stovarsol.

8. Satisfactory results were obtained in the series of cases treated by stovarsol alone, in approximately 70 per cent.

9. A mixed treatment combining the effects of stovarsol with emetin, yatren, bismuth-emetin-iodid, and other well-known remedies for the protozoan parasites will probably give us a higher percentage of satisfactory results.

10. If these conclusions are warranted it seems possible that protozoal infestations must occur not infrequently on the debit side of some of our accounts.

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DISCUSSION

L. M. Boyers, M. D. (First National Bank Building, Berkeley).—In discussing Dr. H. E. Butka's article on protozoan infestations and the effects of stovarsol on them, one can with most profit confine himself to his own experience and study. Before proceeding with a discussion of stovarsol one would like to suggest the inadequacy of the iodin-eosin method of stain as a primary check on infections. Out of our experience in association with Professor C. A. Kofoid of the University of California, it is our suggestion that the iodin-eosin method be abandoned and that all examinations be made on iron-hematoxylin stained smears.

In commenting on Chart 2 the conclusion is drawn that preparation for hospitalization includes certain procedures which decrease the number of parasites present in the stools at least temporarily. In this connection, early in our work in Berkeley it became apparent that one could profit by past medical experience in the practical handling of syphilis. It seemed necessary to adopt the same attitude, *i. e.*, to make a definite clinical diagnosis against which one can and should check laboratory findings. If this is done it is possible that the findings depicted on Chart 2 may have a different interpretation, and that instead of representing obscuration due to the preparation for hospitalization, they may merely indicate the desirability of a twofold approach—one, a thorough-going study of the history and symptomatology, sigmoidoscopy, duodenal drainage, gastric meal and x-ray gastro-intestinal examination, and, two, a laboratory fecal examination and diagnosis.

The comments on stovarsol interest me a great deal for two reasons at least: first, because they bring to light the vicious toxicity of the drug, and, second, because they hint at what we may confirm as the inadequacy of the drug as a thorough-going amebicide. Our experience with stovarsol goes back a number of years. We began its use with the French product about two years before the drug came on the American market. Since that time our experience with it has been almost continuous. Here let me refer to a late editorial in the *Journal of the American Medical Association*, Vol. 91, No. 11, September 15, 1928, p. 805, entitled "The Distribution of Arsenicals in the Body," in which attention is directly called to the variations in distribution of the drug in the tissues which occur upon the use of trivalent and pentavalent arsenicals. Stovarsol, being a pentavalent arsenical, can be expected to produce pigmentation, keratoses, dermatitis, wrist-drop, and optic atrophy. Curiously, our own experience is at variance with this editorial comment, since in our experience intolerance for and poisoning from stovarsol has almost uniformly caused symptoms more nearly approaching those attributed to the trivalent compounds, *i. e.*, severe dermatitis, injection of the mucous membranes and the eyes, and generalized aching with intense headache. This editorial is concerned chiefly with a recent article by E. D. Osborn, M. D., appearing in the *Archives of Dermatology and Syphilology*, Vol. 18, No. 1, July, 1928, entitled "Microchemical Studies of Arsenic in Arsenical Dermatitis," and a preceding article entitled "Microchemical Studies of Arsenic in Arsenical Pigmentation and Keratoses." These studies represent a more analytical and exact approach and a more rational foundation for future therapy in so protean an infection as chronic human endamebiasis. In this connection, since we are primarily discussing arsenicals, let me call attention to the volume published by Raiziss and Gavron, entitled "Organic Arsenical Compounds," which is a very concise and succinct reference book for medical men who are interested in this element and its compounds.

Returning once more to Doctor Butka's article, it would be easy to reënforce his comments on the toxicity of stovarsol, based on our own experience with stovarsol extending over several years. One classic example may serve to illustrate the case. A young Armenian woman came under my observation and care suffering from indigestion with a frank chronic human entamebiasis due to *Entameba dysenteriae.* She was treated for the time being solely with stovarsol, and given 0.25 gram in enteric capsule t. i. d. p. c. until she had taken seventeen tablets. This dose was determined upon because she had a

body weight of not less than 150 pounds, because she showed no signs of kidney disturbance prior to treatment, and because definite signs of chronic hepatitis precluded the use of treparsol, in our opinion. Upon completion of the seventeenth dose this young woman became ill with a severe febrile attack accompanied by exfoliative dermatitis and albuminuria. She was confined to bed for several days. I wish to mention the size of her dosage and the vigor of her intolerance principally because within a few weeks after this attack she was found to harbor *Entameba dysenteriae* as luxuriantly as ever.

Another case at this time, a woman of fifty, weighing over 150 pounds, with evident liver damage, on a dose of 0.25 gram once daily, developed fever, albuminuria and exfoliative dermatitis at the end of the fifth day, *i. e.,* after a total dosage of only 1.25 grams of stovarsol.

Many cases of this sort occurring with and after both small and large doses of stovarsol have determined two conclusions in our minds: first, stovarsol is a highly toxic drug, not sufficiently and specifically poisonous enough for *Entameba dysenteriae,* and at the same time too poisonous for most human hosts. It is a useful drug to have in one's armamentarium if one is dealing with much chronic entamebiasis. It is debatable whether it should be on the open market, readily available for use by the inexperienced, where it is apt to be given without adequate check, such as oft-repeated urinary examination and cognizance of liver disease, and where metallic poisoning may occur unobserved.

In conclusion I wish to say that as early as eight years ago it became apparent in our work that the treatment of chronic human entamebiasis must include the application of two principles so old and trite that it is embarrassing to name them. One is the strict individualization of each case, with a definite and incisive determination of the kind and degree of tissue damage sustained in each particular case; and with this varying systemic damage in mind, the institution of a definite individualized course of treatment which will take into account the tissue peculiarities of the patient and will draw upon the whole therapeutic armamentarium for its effectiveness. We like to state these principles more briefly by saying that there is no one cure and no one treatment for infection with *Entameba dysenteriae.* At best there must be a campaign suited to the individual case. One must for therapeutic purposes draw upon the whole armamentarium which must of necessity include ipecac and its derivatives, numerous arsenicals (and not stovarsol alone), bismuth preparations of various types, quinin, yatren and iodin, kaolin, charcoal, many of the endocrine products, calcium salts, hematinics, autogenous vaccines, various types of physiotherapy, low residue protective dietaries, antispasmodics, peptone solution, and other remedies.

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R. J. Pickard, M. D. (Watts Building, San Diego). Continued experience is convincing me that nearly all carriers of intestinal protozoa, at times, and many carriers most of the time, give symptomatic evidence of their infestation. These symptoms fall into three groups: one, those referable to the alimentary tract; two, remote (toxic ?) effects on the nerves and joints; and, three, yet more remote, the physical and mental lassitude and depression.

Doctor Butka's paper is a valuable contribution of exact observation and rechecking over a long period in a group of cases in which especial interest is furnished by the statistics on the medical students. He shows the difficulty in handling these patients who are discomforted rather than ill, even when selected from a class intelligent enough to coöperate with their physician.

Doctor Butka also shows the penalty of overdosage with stovarsol, so easy to give that one is apt to forget that it is arsphenamin, oxidized, and should be administered with equal caution. Emetin, too, should be given at longer intervals than is customary, because of its effect upon the heart muscle and nerve tissue, and its slow and irregular elimination. Ravaut, to avoid these difficulties, and to prevent the building up of drug resistance by the parasite, alternates both active drugs as described in detail in "Syphilis, Paludisme Amibiase," with a bismuth-ipecac paste in the intervals. When giving intravenous treatment he does not exceed 0.30 novarsenobenzol every four days since "dysenteric patients," because of their debility, and more because of the alteration of their digestive tract and liver, cannot take arsenic as well as other patients, especially when the disease is chronic. Overdosage with stovarsol or treatment with emetin-bismuth-iodid may readily appear to the patient as worse than the original complaint. Yet laboratory experience shows that stovarsol alone, in most cases, in small-spaced dosage, over a period of a few months is almost a specific for both the amebic and flagellate infections.

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Doctor Butka (closing).—There is still considerable difference of opinion as to the adequacy of various methods of search for the protozoal parasites, but this paper demonstrates the effectiveness of the ordinary methods of search in the hands of an experienced worker.

In the eradication of the parasites it has frequently been proven that any single remedy will not be effective in all cases. Some parasites will survive the stovarsol medication and succumb to ipecac and its derivatives, while others are ipecac resistant. While failures following stovarsol medication are observed, there can be no question as to the presence of a specific effect on these parasites. The fact remains, however, as stated by Doctors Boyers and Pickard, that caution must be used in the use of stovarsol, and there must be individualization in the treatment of the intestinal protozoa.

RADIATION TREATMENT OF CERTAIN KIDNEY DISORDERS*

By Albert Soiland, M. D.
William E. Costolow, M. D.
and
Orville N. Meland, M. D.
Los Angeles

Discussion *by Frederick H. Rodenbaugh, M. D., San Francisco; W. O. Weiskotten, M. D., San Diego; Wilbur B. Parker, M. D., Los Angeles.*

THE following singular incident which occurred in the summer of 1901 called my attention to the possible value of radiation therapy in kidney disease. At that time Dr. John B. Murphy visited California in the company of a distinguished medical friend from the Middle West. The friend, en route, developed an acute renal colic accompanied by the passage of blood mixed with considerable purulent material, associated with frequent and painful micturition. Doctor Murphy, who suspected the presence of stone, brought his friend to our office for a diagnosis by means of the x-ray.

The best x-ray equipment in the city in those days consisted of the old type glass-plate static machine with all its ancient trimmings, including a vacuum tube of queer shape and uncertain habits. My recollection of this x-ray diagnostic attempt is not altogether accurate, but it is certain

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* Read before the Urology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

that efforts were made half a dozen times at least to get a kidney shadow impression on the photographic plate. We succeeded in visualizing more or less clearly the spine contour, but no soft tissue values. The striking result, which remained in my memory, is that the patient, very soon after beginning these x-ray diagnostic attempts, became very much better and, with each progressive exposure, improved to an astonishing degree. It is well to recall that the time necessary for an exposure of the deep parts, with a static machine, ranged from fifteen to twenty minutes each, so that a fair amount of radiation must have reached the interior of the patient's body. At all events, following these exposures to x-ray, the doctor's pain had gone, the bleeding and the tenesmus of the urinary organs had also vanished, and the patient became clinically well without any further therapeutic measures. When questioned several years later, Doctor Murphy stated that, as far as he knew, the doctor had remained well since his memorable California visit.

The direct and unmistakable relief that was thus achieved from an abortive diagnostic attempt gave encouragement to the use of radiation in other deep infections, as well as in those of the kidney and its appendices. The old records contain not a few very interesting observations along similar lines, but unfortunately no accurate clinical records were then kept.

As the science of radiation therapy gradually develops, a better understanding permits one to speak with more assurance. We know, of course, that the old static machine, because of its high voltage, actually did generate short-wave energy, and therefore delivered deep x-ray effects.

We have not seen many references to treatment of pathologic conditions of the kidney by x-ray, nor are we aware of any outstanding statistical résumé of work of this nature; but during the past twenty years we have treated with benefit a considerable number of kidney lesions with radiation therapy. Several cases of postoperative tuberculous sinus have been healed by radiation after other local therapeutic measures had failed. A number of tuberculous infections of the kidneys have been rendered clinically well, and kidney complications where mixed infection prevailed, with or without hemorrhage, have shown definite response to x-radiation. The deep x-ray should be a benefit in deep-seated tuberculous lesions; since for superficial tuberculous conditions of the skin, and for certain glandular tuberculous lesions, radiation has superseded any other type of therapy.

Every roentgenologist knows that relief from pain follows the use of the x-rays, particularly where several exposures are made, and that spasm of the ureter, even when produced by mechanical means, yields to x-ray exposures.

A number of cases of inoperable carcinoma of the kidney have been treated with deep x-ray therapy and, while we cannot report any five-year cures, a few cases under observation after two or three years have been greatly improved. Carcinoma of the kidney reacts more unfavorably to radiation than carcinoma in any other part of the body. The chief value of radiation in this condition is in checking the hemorrhage. In some of the very advanced cases the hemorrhage would cease for several months after treatment, recur, and again be checked after subsequent treatment. Radiation has been of value as a preoperative measure, checking the hemorrhage and improving the patient's general condition for subsequent operation. In all cases treated, hemorrhage was checked.

Two cases, referred by urologists for the treatment of kidney hemorrhage of undetermined origin, were under the care of Dr. Anders Peterson, and both were benefited immediately by radiation. A short résumé is given below.

CASE REPORTS

Case 1.—I. F., female, age thirty-two. Hematuria, right kidney, cause unknown. Two months before consulting Doctor Peterson she began passing bloody urine. This would continue for a number of days, accompanied by severe pain in the right lower abdomen. Pain was relieved on passage of clots. Physical examination was negative except for a slight clubbing of the calyces. On two or three occasions, silver nitrate solution was injected into the kidney pelvis, with no improvement. A course of high voltage x-ray was given over the right kidney area with disappearance of the hematuria. The patient has now been well and free from symptoms for one year.

Case 2.—M. G., female, age fifty-four. Hematuria, left kidney, cause unknown. For seven months the patient had had intermittent hematuria with no other symptoms. Cystoscopic examination showed the blood coming from the left ureter. Pyelograms revealed no pathological condition. Local treatment was begun by irrigating the pelvis with silver nitrate solution, without result. X-radiation administered over the left kidney stopped the hemorrhage. She is now apparently well and has been free from symptoms for eight months.

Radiation probably offers more in the treatment of hypernephroma than any other method. This type of growth metastasizes so rapidly and is usually recognized too late for surgery to be of much value. The kidney lesion in these cases usually melts rapidly under radiation therapy, although the glandular metastases are more resistant. Out of seven cases treated two are still alive; one having passed the five-year period without recurrence. Two cases lived over two years following treatment. The patients who died succumbed to lung metastasis; of these, two had liver metastasis, and one had bone metastasis.

In all cases there was improvement following radiation. The histories of some of the cases are given below, one of whom passed the five-year period.

Case 1.—W. R., male, age thirty-one. Hypernephroma. Well at the end of five and one-half years. Referred by Dr. J. Walter Reeves, Los Angeles, September 23, 1922. Patient had been having some pain in the left kidney region for two or three months before he consulted his physician. Shortly before this he had noticed hematuria. On examination there was a large mass in the left kidney region. On September 13, 1922, an exploratory operation was done and a section taken from the mass showed hypernephroma. Since the mass was entirely inoperable, the wound was closed without further surgery. On September 23 a series of deep x-ray therapy treatments

were commenced and completed October 12. The tumor gradually disappeared, and in two months it was impalpable. Repeated examinations since that time have failed to reveal any sign of the growth. It is now five and one-half years since the treatment, and the patient is perfectly well, works every day, and weighs about 180 pounds. Recently he was given a thorough examination at the Mayo Clinic, the results of which were negative. The intravenous phthalein test of the kidney function showed a 65 per cent return of the dye. X-ray examination of the kidneys, ureters, and bladder area was negative, as was the x-ray of the chest.

Case 2.—J. H., male, age forty-five. Hypernephroma, right kidney. Given postoperative treatment. Well at end of four years. Referred by Dr. Franklin Farman, Los Angeles. Patient complained of hematuria and pain in right kidney region. Examination showed a tumor mass in right lumbar region. Four weeks before he was sent in for radiation the nephrectomy for hypernephroma was done. The mass was apparently entirely removed and no metastases were found. Six hours of high voltage x-ray was given over the kidney region, and when the patient was last seen by Doctor Farman he was perfectly well, with no evidence of recurrence.

Case 3.—L. W., male, age forty-four. Carcinoma, left kidney. Good health for one and one-half years.

Referred by Dr. Anders Peterson, Los Angeles, in 1926. For nine months the patient had been passing blood in the urine; there was no pain. Examination showed a palpable mass in the left side of abdomen, reaching ten centimeters below rib margin. It was apparently adherent to all the surrounding structures. Pyelogram shows an irregular pelvis, as seen in new growth. Given three courses of x-ray treatment. Mass has decreased to one-half its original size. It is still palpable but freely movable. He has an occasional trace of blood, but is attending to his business as usual. He was inoperable at the time he first appeared, so that although he is not cured he has been greatly relieved and his life has been prolonged.*

These are a few instances where radiation has been of immense benefit to patients suffering from renal disorders who have shown no improvement under orthodox methods of treatment. Although the treatment may not be curative, the patient should be offered the choice of radiation when doubt exists as to treatment.

1407 South Hope Street.

DISCUSSION

Frederick H. Rodenbaugh, M. D. (321 Medico-Dental Building, San Francisco).—Doctor Soiland's presentation of a group of cases extending over twenty years, is unique in a study of the therapeutic effects of radiotherapy on neoplastic tissues of the hypernephroma group.

The hopeless prognosis of the average hypernephroma cases that usually arrive too late for surgical therapy, and are considered problems concerned with palliative treatment rather than curative, stimulates a search for any agent to relieve these unfortunate patients.

In this group, relief of pain and hemorrhage and the occasional permanent result, here, as in other fields of radiation therapy, encourage the use of this benign agent, that, used as a last resort, has produced such satisfactory results that it has found a permanent place in medical therapy.

Our personal experience in temporary relief of local symptoms has been similar to Doctor Soiland's, but we have no brilliant records of hypernephroma patients free from symptoms for such a long period. Our longest case free from symptoms, is nine years—a patient with local recurrences in the abdomen, well at this time.

This presentation is of unusual value and should stimulate further work in the hope of relieving the present hopeless prognosis in this group of neoplasms.

⁂

W. O. Weiskotten, M. D. (603 Medico-Dental Building, San Diego).—Doctor Soiland and his associates have presented a most interesting report of a series of cases with truly encouraging results. Many of us can recall patients who have been referred for roentgen examination with a rather indefinite history of hematuria and of indefinite pain referred to some portion of the urinary tract, in which the x-ray examination gave no evidence which would explain the clinical findings. Possibly many of these patients would be benefited by radiation therapy. An early diagnosis of kidney neoplasm is not always possible, but the patient should be given the benefit of the doubt and treatment should be instituted with the hope of rendering the patient symptom-free. In those patients who have progressed to the stage of palpable mass in the kidney area and in whom surgery is not indicated, radiation therapy offers probably the best hope toward the amelioration of symptoms.

⁂

Wilbur B. Parker, M. D. (527 West Seventh Street, Los Angeles).—The exemplary article of Dr. Albert Soiland and associates is difficult of discussion in reference to the true title "Radiation Treatment of Certain Kidney Disorders with Special Reference to Hypernephroma."

Crediting Doctor Soiland with being a pioneer in deep therapy, whose contributions have withstood all criticism in reference to dosage, application and results, it is believed this paper should not include multiple incomplete case reports, tuberculosis in varied progression, and an opinion "that spasms of the ureter when produced by mechanical means (unexplained) yield to x-ray exposures." I shall limit my discussion to hypernephroma.

For cure of hypernephroma or any other malignant conditions of the kidney, radiation therapy and surgery are of doubtful value, unless a diagnosis is made before glandular metastasis has occurred. The alleviation of hematuria and attendant symptoms by the use of radiation in advanced inoperable cases is well established. In either event scientific radiation therapy, both preoperative and postoperative, is indicated. The statistics of such therapy are of dubious value, due to inability of early diagnosis and to a lack of coöperation between the profession at large and the competent roentgenologist.

When the specialist and general practitioner cease to dictate dosage to the radiologist, and competent radiologists are responsible for proper administration, we will emerge from the present maze to a field of more open vision.

⁂

Doctor Meland (closing).—The literature contains very little that is definite with reference to the treatment of kidney disorders by means of radiation. Because of this lack, this paper is presented. Though such a disease as hypernephroma is looked upon as a more or less hopeless condition, the fact that symptoms may be relieved and that there may be an apparent arrest and disappearance of the growth is sufficient evidence of its efficacy. To insure the patient the best results, it is not sufficient to rely on one course of treatment. Insist that he report frequently for subsequent therapy and observation.

Patients with hematuria of unknown etiology, apparently not responding to the regular methods of treatment, should be given relief through radiation before submitting to surgery.

* This patient died five months after the presentation of this paper. Autopsy revealed that he died of general carcinomatosis secondary to a carcinoma of the kidney.

A SYPHILOLOGIST'S IDEAL CLINIC*

By Ernest K. Stratton, M. D.
San Francisco

Discussion *by Douglass W. Montgomery, M. D., San Francisco; Paul A. O'Leary, M. D., Rochester, Minnesota; H. J. Templeton, M. D., Oakland.*

DERMATOLOGISTS have always given a certain proportion of their time to clinical work in syphilis. The discovery of the causative organism, the introduction of laboratory diagnostic tests, and the advent of salvarsan therapy have made it possible for the general physician to diagnose and to treat most cases of syphilis. During the past fifteen years dermatologists' work in syphilis has therefore, with a few noted exceptions, greatly lessened.

An average of 35 per cent present some lesion of syphilis in spite of a negative blood Wassermann, and the dermatologist still sees the larger number of this group. While it is an accepted fact that no man is a competent syphilologist unless he is able to recognize and to differentiate all other skin lesions, there are certain other requirements, such as the broader medical point of view stressed by our recognized syphilologists which we, as dermatologists, must develop if we hope to be rated as syphilologists. That this is not an impossible attainment for dermatologists is shown by the character and amount of work done by such men as Fordyce, Wile, Stokes, O'Leary, and many others.

There can be no doubt that the centering of the treatment of syphilis in one department affords the best plan of study and control.

In most hospitals the study of syphilis is done in the department of dermatology and syphilology; in others a separate department of syphilology, having no connection whatever with the department of dermatology, has been established. Is this separation due to the dermatologist not being interested in the study of syphilis as a whole, or is it because his medical associates do not consider him qualified?

The title of this paper should be further explained. I make no pretense herein to assemble all of the conveniences and perfections which each of you would incorporate into your ideal clinic. There are, however, certain features, some of which I have read, some observed at one or another well-known clinic, and others conceived through personal experience, which, combined, would leave little to be desired in an ideal syphilis clinic.

IMPORTANCE OF SOCIAL SERVICE DEPARTMENT

Paramount in importance is the coöperation of an efficient social service department. When one hospital, after five months' operation of a simple follow-up system, changed its attendance from 80 per cent who failed to receive adequate treatment, to 75 per cent who received adequate care, and when five other clinics which had no follow-up system showed that but 20 per cent of their patients received as much as a year's treatment, we get some idea of the need of this service. Moreover we understand why various states have already amended their sanitary codes to include an adequate follow-up system in their minimum standards for syphilis clinics.

Another very important function of the social service worker, and one which is neglected in many clinics, is the bringing in of the various members of each syphilitic's family for a complete examination, whether the case treated is an early or late stage of the disease. If funds for this purpose cannot be secured from the clinic budget, an appeal should be made to individuals or organizations to finance it, at least during a period of demonstration.

The Solomons at the Boston Psychopathic Hospital, for instance, make this a routine procedure and have been successful in securing the examination and attendance at their clinic of 78 per cent of the relatives. They stated that three-fourths of the relatives infected with syphilis were totally unaware of having any disease. Their statistics were as follows: 23 per cent of the families showed syphilitic involvement (and they work mostly with families of late syphilitics), 30 per cent were mates, and 12 per cent progeny.

The great problem of the social worker here, then, is to persuade these seemingly well members of a family who have no symptoms of latent syphilis except a positive Wassermann or mild neurological symptoms to report for treatment. In the case of children this treatment must extend over a period of years.

The adjustment of the social problems of the syphilitic and his family constitutes the third outstanding problem of the social service worker in the follow-up of the syphilitic cases.

In order that relatives may be safeguarded while simultaneously the proper attitude toward the disease be secured, the most careful social work is needed in the early contagious cases. The economic problem, often temporary in early cases, looms large in the late stages of the disease when industrial decline of the wage-earner means a lowered standard of living, and permanent incapacitation often leads to a broken home, a working mother, the placing out of children. Financial aid adjustments here are the part of the social worker.

In all such work proper social histories should be taken and records kept so that the community may have the benefit of later research.

THE SCIENTIFIC DEPARTMENT

Let us next consider the scientific department and its record charts. For the past year I have been using in my work at the San Francisco Polyclinic Hospital a charting system of my own composition. Certain modifications will, of course, have to be made from time to time as the indications arise, but it forms, all in all, an accurate, comprehensive, yet compact record which I think will prove invaluable for study, especially if used with a symptomatic cross-indexing system.

Records.—On one side of the history and treatment sheet there is space for an adequate luetic

* Read before the Dermatology and Syphilology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

history and physical examination; on the other, columns for inserting the date of each treatment under the headings of "arsenic," "mercury," "bismuth," and "iodin." These are again divided into courses of eight to twelve each, with sufficient space for recording two years of constant treatment. Below this come laboratory reports with space for eight urinalyses, eight blood Wassermanns and four complete spinal fluid examinations, so that at a glance one can parallel the treatment with serologic results. Supplementary sheets are attached to this one in order to complete the record. The first is kept for consultants' comments and opinions and to this I transfer the ophthalmologist's report, x-ray findings, the complete neurological examination, etc. The third sheet I use for progress notes.

DEPARTMENT OF DERMATOLOGY AND SYPHILOLOGY
(History and Treatment Record for Syphilis)

Name:- Age:- Date:-

Address:- S. M. W. B. H. No.

Occupation:- Nationality:-

Diagnosis:-

Duration:- Location:-

History:-

1. Primary Period:-
2. Secondary Period:-
3. Tertiary Period:-

Physical Examination:-

Previous Treatment:-

Management:-

DEPARTMENT OF DERMATOLOGY AND SYPHILOLOGY
(Supplemental Record for Syphilis)

CONSULTANTS' COMMENTS

DEPARTMENT OF DERMATOLOGY AND SYPHILOLOGY
(Supplemental Record for Syphilis)

PROGRESS NOTES

Examination.—The physical examination must cover every portion of the body, and to that end we should not only have an examination room which is quiet, warm and light, but also sufficient time for thorough work. At the first examination notations should be made of negative as well as positive findings. Inasmuch as the eye, the nervous system and the heart are the structures which syphilis most frequently involves, the department should apply routine tests to detect the earliest changes in these organs. For example, in order to simplify the ophthalmoscopic examination, a small booth can be installed at one end of the examination room to serve as a dark room.

Another invaluable factor for an ideally equipped clinic is a two- or three-bed room adjoining the examination and treatment rooms. This should be equipped with the ordinary hospital accommodations and reserved for the exclusive use of the syphilis clinic. The value of a routine lumbar puncture on luetic patients has become increasingly self-evident. This room will accommodate patients for such a test and those requiring intraspinous therapy. Moreover, beds should, whenever possible, be reserved for patients manifesting an immediate reaction to salvarsan treatment as well as for the acute infectious case. Thus the physician's work is concentrated and he is enabled to see a greater number of patients during his clinic hours.

Laboratory.—A small laboratory should also be an integral part of the clinic, equipped with apparatus sufficient to make such tests, the immediate necessity for which might arise during clinic hours, as well as for the preparation of salvarsanized serum. It should include especially a microscope with a good dark-field substage.

Certain problems combining the clinical material with experimental rabbit syphilis are now being worked out satisfactorily in several well

known clinics, and it seems to me that similar facilities in this laboratory would be invaluable in a truly ideal clinic.

Treatment Rooms.—Completing the plan of the clinic, let us finally consider the treatment rooms. A tiled room wherein there are two tables with a double gravity tube stand and a sterile mixing table in such a position that patients cannot come in contact with them is exceedingly desirable and quite adequate for the treatment of a considerable number of patients. Having observed clinics wherein salvarsan treatments are administered by the syringe method and those where they are done by gravity, I have concluded that the latter is infinitely preferable. There are fewer reactions on account of the dilution of the drug and fewer serious infiltrations, due to the absence of force in its introduction. It is the only method by which the old salvarsan may be safely used.

While it has generally been conceded that the male and female patients should be seen at different times, I would have the division yet more pronounced. Let the patients in the primary and uncomplicated secondary stages be seen at one time, since they require a different type of therapy; those in whom the eye is affected at another; pregnant women at a third; segregating also the neurological, cardiovascular, visceral, and hereditary syphilitics. Seeing patients in such groups, a more definite plan of study may be followed, statistics may be more easily compiled and cases followed through more completely. For instance, take the case of a woman seen first in the third month of her pregnancy and presenting a four plus Wassermann. Treat her in the ensuing months as intensively as possible, and observe her case in its entirety, including attendance at her delivery, when sections of the placenta can be obtained for microscopical study, the blood from the cord obtained for Wassermann tests, and the child transferred to its own group for observation and treatment if necessary.

ARSENIC	BISMUTH	MERCURY	IODIN	INTRASPINAL THERAPY
Kind:- 1. 2. 3. 4. 5. 6. 7. 8.	Kind:- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Kind:- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Sat. Sol. K. I.	1.
Kind:- 1. 2. 3. 4. 5. 6. 7. 8.	Kind:- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Kind:- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Com:- Disc:-	2.
Kind:- 1. 2. 3. 4. 5. 6. 7. 8.	Kind:- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Kind:- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Com:- Disc:-	3.
Kind:- 1. 2. 3. 4. 5. 6. 7. 8.			Com:- Disc:-	4.
			Mixed Treatment	5.
			Com:- Disc:-	6.
			Com:- Disc:-	7.
			Com:- Disc:-	8.

URINALYSIS								BLOOD WASSERMANN			
Date	Albumin	Sugar	Casts	Date	Albumin	Sugar	Casts	Date	Reaction	Date	Reaction

SPINAL FLUID				
Date	Cells	Globulin	Wassermann Reaction	Gold Reaction

Doctor Stokes' book, "Modern Clinical Syphilology," is unquestionably the most advanced and complete work of its kind published today. The author recommends its perusal to all who are interested in the subjects discussed.

490 Post Street.

DISCUSSION

Douglass W. Montgomery, M. D. (323 Geary Street, San Francisco).—Syphilis has long been known to be a contagious disease, but the extremely serious nature of the infection has only recently been recognized by the profession at large or by the public. An infection that can cause a profound change in the brain (paresis) years after the primary infection, and thereby the loss in a few weeks of a family fortune that it had perhaps taken generations to accumulate, is undoubtedly worthy of the consideration of the com-

munity at large. Doctor Stratton's clinic is a well thought out plan to control this disease, but it is a plan that requires many of the higher intellectual faculties in order to make it function properly. The chief of such a clinic must be honest, and he must have the kind of character that impresses his neighbor with his honesty. He must have executive ability, and as he is dealing with a shameful disease he must be capable of keeping a medical secret, and, hardest of all, he must be able to impress upon his staff, both nurses and doctors, the importance of keeping medical secrets. In fact I regard this last as one of the most difficult branches of his work. The clinic must be kept from degenerating into a spying machine if it is to live in the community and perform good work. Anyone who has ever traveled in Europe and the islands offshore will have had this brought to his mind. The tribes immediately around the North Sea are distinguished by their independent character and their hatred of spying, of which those dwelling in the British Islands are the extremest examples. As one travels east from the seaboard these characteristics become less marked, till in Russia the Cheka, the secret police, is the government. We would not endure the power given to the police in Germany, power which is infinitely less than that enjoyed by the tyrants of those governments farther east. The objection may be raised that the officials and employees of this clinic would have no, or very limited, police powers, yet dealing as they do with a shameful disease, permeating all classes of the community, they necessarily become possessed of knowledge which, in intellectually dishonest hands, might be abused. Furthermore, as before mentioned, many of the investigations of such a clinic have always this flavor of spying, and spying in a very sensitive area, into family secrets.

The above is not stated as a deterrent to the formation of such a clinic. It merely refers to what I consider the greatest obstacle to its efficient functioning. Obstacles are meant to be overcome, and the event lies in the wise way of overcoming them.

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Paul A. O'Leary, M. D. (Mayo Clinic, Rochester, Minnesota).—I was pleased to hear Doctor Stratton emphasize the need for an efficient social service and follow-up system in a clinic for the treatment of syphilis, and I would urge that he maintain the follow-up system, not by a stamped postal card or stereotyped form letter, but by an interested social service worker. I think it is necessary that the social service worker remember that personality is a vital part of her work and hence, "hard-boiled tactics," which may appear after one has had considerable experience in this field, would be more of a detriment to the clinic than no follow-up system at all.

A complete record system is an essential part of the clinic, and I believe the type of sheet on which these data are to be recorded depends on the enthusiasm of the chief. When facilities permit, an elaborate detailed record with progress notes, treatment data, treatment reactions, urine and other laboratory reports facilitate thorough clinical statistical studies.

Doctor Stratton is fortunate in having several beds in his clinic for the care of patients who have spinal fluid examinations. The present status of our knowledge of syphilis demands an examination of practically every patient's spinal fluid if treatment is to be given intelligently, and it is my experience that if patients are taught early in the course of treatment that spinal fluid examinations are essential, there is little difficulty in doing lumbar punctures as often as the patient's condition indicates.

While speaking of the spirit of the social service department it is well to emphasize the necessity of developing a personality in the organization itself. The herding of patients in the basement or some similar undesirable part of the building, as is so frequently done in syphilitic clinics, is to be greatly condemned. Not only does it lower the spirit of the patients but, I am certain, it materially interferes with the efficiency and the spirit of the personnel of the organization. I believe a small fee should be charged for treatments received. This is possible in practically all communities, and it establishes a means of creating a fund to improve the equipment of the department or to establish a sum of money for investigative work. In some successful clinics part of this fund is divided among the professional personnel of the department, and I believe the idea has more advantages than disadvantages.

A syphilographer has now become an appraiser of the diagnostic opinions offered by the various clinical and specialty departments of the clinic. This is so because syphilis is such a complex disease that it is often impossible for one man to pass final judgment on a diagnostic problem involving syphilis without the opinions of other clinicians or specialists. It is essential that the syphilographer maintain among the members of the clinic, including his own department, the anticipation and suspicion of syphilis because if this spirit is prevalent fewer syphilitics will slip through the organization undiagnosed. It is also essential that a clinic for syphilitic patients have at all times a clinical problem under course of study. There is at present unlimited opportunities for clinical investigation, and I believe that clinical investigation in the field of syphilis is every bit as valuable and frequently more so than animal experimentation. This is a means of creating and stimulating interest in the personnel as well as increasing clinical knowledge.

Another duty and one which I feel is very important, is an educational program. I believe the day has arrived when the public is anxious to receive instruction on our present-day knowledge of syphilis. My experience in discussing syphilis before lay audiences warrants this opinion. In fact it seems to me that the educational work among the medical profession as well as the laity that may be done by a clinic for the treatment of syphilis is one of the paramount reasons for its existence, and I heartily urge Doctor Stratton to make special effort to call to the attention of physicians the recent advances in the diagnosis and treatment of syphilis.

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H. J. Templeton, M. D. (3115 Webster Street, Oakland).—The author, Doctor Montgomery and Doctor O'Leary have so thoroughly covered this field that little remains to be added. A well-functioning social service department is the most important adjunct to a syphilis clinic. It has two main functions—to keep deserving patients in the clinic and to keep those who can afford the services of a private physician out of the clinic.

In recent years the large public clinics have been somewhat justly criticized by private physicians for treating patients who could afford to pay their family physician a fee. The possible solution of this problem is to have trained social service workers sufficient in number that investigation of the financial status of each applicant may be made. Many patients who are now being treated could be sent to their family physician with the request that he charge them a moderate or small fee and with an outline of the treatment being used or advised. Arrangement should be made whereby certain patients could be referred back to the clinic for special work, such as cerebrospinal fluid examinations, x-ray of the aortic arch, determination of biliary efficiency, etc.

The important problem of keeping patients constantly under treatment is solved better here on the west coast than in the large eastern clinics.

Alderson reports that only 7 per cent of the clinic patients at his Stanford University syphilis clinic disappeared from treatment during 1927. This may be due in part to the efficient work of his full-time social service worker, but it is also due to the better class of patients seen in the western clinics. We do not

have the slum class, the floaters, and ignorant negroes which the eastern clinics have to keep in line.

I have used Doctor Stratton's excellent history sheet, with some modifications, and find it very useful.

Doctor Stratton (closing).—I wish to thank the discussers for their ideas on this subject.

I believe that patients would be less inclined to think we were spying if in the very beginning the social service worker and physician would take sufficient time to explain to them the nature of their disease and the reasons for the follow-up. Since the law permits the use of a number in reporting their case to the Board of Health, the name not being given to the authorities so long as they continue to coöperate, a person of average intelligence can understand that it is our desire to maintain secrecy in every case. However, the ones that cannot understand this, especially those in the infective stage of the disease, must receive treatment no matter how drastic the necessary measures are to insure it.

I quite agree with Doctor O'Leary that "hard-boiled" methods have no place in this clinic. Seeing and treating patients in symptomatic groups as I have suggested not only materially reduces the number seen at one time and affords closer personal contact with each case, but will obviate the necessity of herding patients in massed formation into dark places, *i. e.*, basements, etc.

Unless there is a clinical problem under study, syphilis clinics become mere "injection clinics" and as such cannot possibly interest any physician who has already perfected his venipuncture technique.

Doctor O'Leary's suggestion regarding the anticipation and suspicion of syphilis throughout the various clinics, as well as his advice as to an educational program, strike me as being of great value.

I agree with Doctor Templeton that patients able to pay a private physician should not receive routine clinic treatment; but when you consider that costs of antisyphilis treatment even in clinics range from fifty cents to five dollars a week, one wonders what percentage of an average syphilis clinic could pay more. However, the heads of most clinics are usually most willing and anxious to advise doctors regarding syphilis problems of their private patients regardless of whether the patient can or cannot afford to pay for consultation, and there is no reason why this service should not be extended to include spinal fluid and other special examinations at clinic prices for patients with limited means.

PROLONGED MONOCULAR OCCLUSION IN DIAGNOSIS OF HETEROPHORIA *

By Edward M. Talbott, M. D.
San Francisco

Discussion *by Raymond J. Nutting, M. D., Oakland; Theodore C. Lyster, M. D., Los Angeles.*

As a cycloplegic is used in diagnosing ametropia, so prolonged monocular occlusion should be used in selected cases to determine the existence of muscle imbalance. It should be continuously maintained until two successive tests give similar results; usually a week. Treatment based upon this test often relieves persistent asthenopia.

My attention was called to the use of prolonged monocular occlusion in the diagnosis of heterophoria by Dr. Roderic O'Connor in 1922. Since which time I have used it successfully in selected cases. Both O'Connor and Marlow had been using it since 1919.

I wish to emphasize the necessity of this method in making accurate eye diagnosis and to report some of my observations and conclusions.

This test is not generally used or understood, and when used is often carried out improperly. Clark, who wrote an otherwise excellent article on the subject, gave his usual time of occlusion as twenty-four hours. Marlow stated, in referring to the discussion of one of O'Connor's papers on this subject, that the speakers showed little evidence of experience with or appreciation of its real value.

Some patients get fairly satisfactory results with glasses from optometrists, better with glasses prescribed by oculists without the use of cycloplegics, and even better from oculists when mydriatics have been used.

PERSISTENT ASTHENOPIA WITH PROPER REFRACTION

However, there are a certain number of cases in which even with proper correction of the refractive error the asthenopic symptoms persist. These cases are usually due to muscle imbalance. To obtain a correct diagnosis it is necessary to relax the extra-ocular muscles. This is well expressed by Clark, who states, "Since we have no drug that will act selectively on the recti and oblique muscles, as do the cycloplegic drugs on the ciliary muscle, we must resort to other (indirect and physical) means to relax the extra-ocular muscles. Temporarily suspending the fusion impulse by covering one eye for an extended time is the method employed."

As there are many latent refractive errors which appear when cycloplegics are used, so doubtless many additional cases of muscle imbalance would be found if the patch were used in all cases. As many refractive errors do not produce asthenopic symptoms, especially in robust patients, so many cases of muscle imbalance are without symptoms. This fact is not sufficient argument against either mydriatics or prolonged monocular occlusion.

O'Connor stated several years ago that, out of 5000 new patients of all kinds, 1500 needed this test. Marlow says he sees a definite percentage of cases in which the most careful correction of the refraction fails to relieve the symptoms complained of, either an apparent orthophoria or some low degree of heterophoria being present before use of the patch. I also frequently find cases where the prolonged occlusion test enables me to discover a hidden imbalance and relieve asthenopic symptoms.

It is obviously impossible to get a series of controls of persons without eye symptoms, to find what per cent of the total population might have extra-ocular muscle imbalance. In some cases where the patch is used, muscle imbalance does not appear.

INDICATIONS FOR USE

It is not necessary to use the prolonged monocular occlusion in all cases. Its use is desirable in the following: patients who are disturbed by moving objects, those who get train-sick, sea-sick,

* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

or dizzy when shopping or in crowds, those with a low amount of vertical or greater amount of horizontal heterophoria, those with a surprised expression (wrinkled forehead), head tilters, and those with asthenopic symptoms that persist even when wearing the proper correction for the refractive error. A hidden vertical deviation is a usual cause of persistent asthenopic symptoms after accurate correction of a refractive error.

DIAGNOSIS

A complete and accurate diagnosis of heterophoria can be made only by the aid of prolonged monocular occlusion. O'Connor in a series of cases of apparent orthophoria with persistent asthenopic symptoms found by this method a vertical deviation appeared, in one case as much as 13 degrees. From the above it is very apparent that the real balance of the extra-ocular muscles is only known after the use of the patch.

In cases of very strong fusion sense the imbalance does not appear for several days; however, it is found that after a week or so the eyes come to a position of rest which is constant.

In using the patch I have frequently observed that the symptoms are relieved. Also that the apparent balance of the eye changes, usually the vertical deviation increases. Esophoria, which is often a spasmodic effort to overcome a vertical deviation decreases or disappears entirely, while exophoria appears or increases.

I have found that vertical deviations produce more asthenopic symptoms than the horizontal deviations, probably because the correction of the vertical deviations involves an entirely abnormal use of the extra-ocular muscles. Stevens was of the opinion that one degree of vertical deviation could cause symptoms as severe as 14 degrees of horizontal.

THERAPEUTIC TEST OF CORRECTION

The therapeutic test of the procedure is equally encouraging. If the deviation which appears after monocular occlusion were not the true one, the correction of the muscle imbalance by prisms or operation would produce an imbalance in the opposite direction.

This is not the case. When the imbalance which has appeared under the patch has been properly treated the asthenopic symptoms disappear, and the tests with the Maddox rod show an orthophoria. I have noted in many cases of marked muscle imbalance and squints operated upon that the faulty muscle has long, weak tendons, or apparently abnormal insertions.

CORRECTION OF GLASSES

The method is very simple once the coöperation of the patient has been gained. This is best done by a careful explanation that the purpose of the patch is to temporarily suspend the action of the fusion center and allow the covered eye to take a position of muscular balance, and in order to do this the eyes should not be used as a pair during the period of the test.

Tests with the Maddox rod are made at two-day intervals until two consecutive similar tests are obtained. The patient is directed to relax the eyes as much as possible during the tests.

The patch is placed over the nonsighting eye and should be of pasteboard or cloth, celluloid being avoided because of its inflammability.

The patients are told to carry on their work and pleasures as usual to determine if they are more comfortable with monocular vision. Often the symptoms disappear by this means alone.

These careful instructions are given that the true results may be obtained. It is my firm conviction that the method improperly employed does more harm than good; it is an annoyance to the patient and discredits the method. As it is generally used (for twenty-four hours or off and on) it is not a prolonged monocular occlusion.

Treatment is only mentioned to emphasize that prisms based up and down, the amount usually being divided between the two eyes, relieves the symptoms in cases of vertical deviates of not a high degree. Slight horizontal deviations are usually symptomless after the vertical deviation has been corrected. In larger ones prisms bases in or out are used.

MUSCLE CORRECTION

In the higher deviations operation is necessary, the "cinch" operation of O'Connor being ideal for this purpose.

I wish to mention four cases typical of work with the patch.

CASE REPORTS

Case 1.—The first case is one of apparent muscle imbalance which changed in degree.

Mrs. S. E. H., age thirty-six, was very nervous and complained of dizziness and insomnia. Wore glasses with which she read 20/20 with both eyes. The test with the Maddox rod showed:

Without Patch

Right eye:
Cataphoria 3; exophoria 5.

Left eye:
Hyperphoria 2; exophoria 6.

With Patch

Right eye:
Second day—Cataphoria 4; exophoria 4.
Fourth day—Cataphoria 8; exophoria 6.
Fifth day—Cataphoria 8; exophoria 5½.

Left eye:
Hyperphoria 3; exophoria 5.
Hyperphoria 5; exophoria 8.
Hyperphoria 8; exophoria 8.

Prescription was given:

O. D. S + .12 = cyl + .25 ax 90 w prism 3° base up.
O. S. S + .12 = cyl + .25 ax 90 w prism 3° base down.

With these glasses the patient read 20/20 in both eyes, had a vertical orthophoria and an exophoria of only two degrees. Operation in this case, if the patient

had so desired, would probably have obviated the necessity of wearing glasses.

Case 2.—The second case is one of vertical orthophoria which developed a high vertical imbalance.

Sister A., age thirty-nine, was extremely nervous and subject to violent headaches. She had been unable to use her eyes for reading for years, although she had been refracted by a number of efficient oculists and was wearing glasses which gave her the right eye 20/20, and the left eye 20/30.

Refraction under homatropin showed astigmatism, compound, hyperopic, bilateral.

With the Maddox rod there was:

Without Patch

Right eye:

Vertical orthophoria; esophoria 1½.

Left eye:

Vertical orthophoria; esophoria 1½.

With Patch

Right eye:

Second day—Cataphoria ¾; exophoria 1.

Fourth day—Cataphoria 5; exophoria 3½.

Sixth day—Cataphoria 7; exophoria 6.

Left eye:

Hyperphoria 1; exophoria 1.

Hyperphoria 5; exophoria 3.

Hyperphoria 7; exophoria 6.

The patient was given a hook-front for trial.

O. D. 2½ base up.

O. S. 2½ base down.

A week later the following prescription was given:

O. D. S + 1.00 = cyl + .25 ax 105 w prism 2 base up.

O. S. S + 1.12 = cyl + .25 ax 75 w prism 2 base down.

With this glass patient read 20/20 in both eyes and had a vertical orthophoria. Patient's nervousness disappeared and she was able to use her eyes for sewing and reading.

Case 3.—The third case is one of apparent high exophoria, which disappeared while the vertical deviation increased in amount.

P. W., age sixteen, had been carefully refracted by oculists of high standing. He was a misfit; could not get along in school or with the other children; he had violent headaches; a forehead wrinkled; and drooping lids.

Test with the Maddox rod showed:

Without Patch

Right eye:

Cataphoria 6; exophoria 15.

Left eye:

Hyperphoria 3; exophoria 12.

With Patch

Right eye:

Second day—Cataphoria 6; exophoria 4.

Fourth day—Cataphoria 8; horizontal orthophoria.

Sixth day—Cataphoria 8; horizontal orthophoria.

Left eye:

Hyperphoria 8; exophoria 3.

Hyperphoria 7; exophoria 1.

Hyperphoria 7; horizontal orthophoria.

The patient was refracted with atropin and given the following prescription:

O. D. S + .50 = cyl + 3.25 ax 100 w prism 3° base up.

O. S. S + .75 = cyl + 2.25 ax 80 w prism 3° base down.

He had 20/20 vision with these glasses, both eyes. Patient was directed to use glasses all the time, as are all the prism cases. He has had no headaches since. The eyes appear wider and his personality and progress in school show marked improvement.

Case 4.—The fourth case is one of apparent vertical orthophoria with marked esophoria. The esophoria decreased under the patch, and a high vertical deviation developed.

Mr. R. W. D., age thirty, had a marked eye disability, with headaches and eye fatigue. With the glasses he was wearing read O. D. 20/20 O. S. 20/30.

Test with the Maddox rod showed:

Without Patch

Right eye:

Vertical orthophoria; esophoria; 9.

Left eye:

Vertical orthophoria; esophoria 20.

With Patch

Right eye:

Second day—Cataphoria 3; esophoria 5.

Fourth day—Cataphoria 10; esophoria 20.

Sixth day—Cataphoria 6; esophoria 15.

Left eye:

Hyperphoria 3; esophoria 12.

Hyperphoria 8; esophoria 20.

Hyperphoria 6; esophoria 6.

The vertical deviation disappeared on looking down, showing a right superior rectus paresis. This muscle was shortened with a number of strands of fine dermol by the O'Connor "cinch" method. There was an immediate overeffect of six degrees. Two weeks later, when the dermol shortener was removed, there was a vertical orthophoria with an esophoria of eight degrees.

The patient was refracted with homatropin, and was given the following prescription:

O. D. S + 2.00 = cyl + .75 ax 80.

O. S. S + 3.00 = cyl + .62 ax 100.

With this glass the patient reads with both eyes 20/20. About six months later the vertical orthophoria was maintained, and there was 5 degrees of esophoria. He has had no further eye disability.

SUMMARY

In conclusion I wish to emphasize that the prolonged monocular test is one which, if properly carried out, enables the oculist in selected cases to satisfactorily diagnose and treat many eye disabilities, changing these unfortunates into satisfied grateful patients, who might otherwise wander from oculist to oculist unrelieved, eventually to fall prey to some cultist or muscle-exercising optometrist.

909 Hyde Street.

DISCUSSION

Raymond J. Nutting, M. D. (1904 Franklin Street, Oakland).—I have used the occlusion test for several years and it has given me excellent results in a great many patients where all other forms of treatment have failed. Personally, I feel that the proper diagnosis and treatment of muscular imbalance is too often neglected and in many cases not even examined. No doubt the reason so many men do not get good results from the use of the patch is due to the fact that they do not use it properly or long enough, as Doctor Talbott has so well brought out in his paper.

If a patient comes to you for relief of marked asthenopic symptoms, especially after they have made the rounds and have seen some very good men in the profession and have had a *complete* medical exami-

nation, you have not fulfilled your duty toward that patient until you have made a complete eye examination and it cannot be complete until you have used the prolonged monocular occlusion test. I also agree with Doctor Talbott that a hidden vertical deviation is one of the most common causes of these persistent weird symptoms.

You will often hear the remark made that if you examined the eyes of one hundred normal cases (or patients without symptoms) that you would find a high number of hidden deviations. It is no doubt true, but I will wager that if you take the same patients that you would find an equal number who need glasses, but does that condemn the test and likewise say that no patient needs to wear glasses for relief of symptoms? The same thing holds true in other medical conditions; simply because a patient has no local symptoms, as far as his abscessed teeth are concerned, is no reason they should not be extracted.

I do not want to give the impression that hidden muscular imbalance is the cause of all eye symptoms, but do feel that after removing or treating all medical conditions present and patient still complains after a complete and accurate refraction, that in a large percentage of cases you will find a hidden muscular imbalance as the seat of your trouble.

A large number of myopic patients with esophoria show a vertical deviation as cause of their trouble, when a patch is used, and as result by correcting the latter your patient who has not been able to read in comfort for years is able to do so for the first time. I had two senior dental students at the University of California who had all kinds of examinations for their continued trouble, and were about ready to quit school on account of their eyes. No one had ever tried the patch and both showed around four degrees vertical deviation. With prisms added to their original prescriptions they were comfortable for the first time and were able to finish their school year. Both are now practicing and still wearing their prisms with perfect comfort.

Of course a large number of eye symptoms can be corrected when proper care is given to the general health, and it is my belief that a large number of patients carry a hidden muscular imbalance a good many years, but when the general health is lowered, whatever the cause, then the patient shows signs of eye trouble. We must relieve that patient of his or her symptoms, regardless, as their general health is not often brought back to normal by any form of treatment.

❦

Theodore C. Lyster, M. D. (1920 Wilshire Boulevard, Los Angeles).—It appears to me that Doctor Talbott has made a very strong plea for an accurate method of determining latent forms of hyperphoria, which would otherwise remain undiscovered. It is my feeling that the method has not been in very general use, as tests of this character take time to prove their practicability rather than the value of the information really obtained. It is my feeling that one of the reasons so few of us have limited experience in the use of prolonged monocular occlusion, especially in troublesome cases of hyperphoria, is the length of time and the coöperation of the patient required in making these extended tests. It would certainly be desirable to obtain this knowledge in routine tests were this time limit not a factor. Under existing conditions it must necessarily be limited to select cases who will coöperate.

Looking back I recall now that at the beginning of the war, when large numbers of eye men were required as specialists in the military service, we found, to our surprise, it was not routine throughout the country to test the muscle balance in patients examined because of refractive errors. Now it must be seldom that this examination is not most carefully done.

So it is with any ocular test giving accurate information. My experience with monocular occlusions is too limited to be of much service, but it is my conviction that basic information obtained by any accurate method is going to become a part of a routine examination, and it will of course be judged purely on its merits.

SUBACUTE BACTERIAL ENDOCARDITIS*

PART II

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CLINICAL COURSE

THE course of the disease is usually progressive and to a fatal termination. The duration of the illness varies greatly, as has already been shown, but there may be quiescent periods during which the patient is free from fever and apparently convalescing, only to suffer a relapse with progression to death.

LIBMAN'S CLASSIFICATION

Progressive weakness and anemia, with continuous fever, and later the complications which arise from embolism, characterize the usual course. Libman [4c] states that the outlook depends upon the type of case. He classifies his cases into five groups. *One.* The usual type of moderate severity in which few patients recover. *Two.* Those that are in the bacteria-free stage when they come under observation, and which are usually afebrile. These, too, are nearly always fatal. *Three.* A group which he calls transitional which he subdivides as follows. (*a*) Those with positive blood cultures which subsequently become bacteria-free and afebrile and progress either to recovery or to death as in the typical afebrile cases. (*b*) Those that have negative blood cultures with fever rapidly subsiding, who may recover or may progress to death, and (*c*) those in which there is no fever, the blood culture is negative and the only signs are those which indicate that the patient has recently passed through a bacterial stage. When these transitional cases come to necropsy the lesions are bacteria-free, healed or healing, at least in part, although there may be evidence of healing in one part, and active process in another.

The *fourth group* to which Libman [4c] refers includes those of the type which were reported by Oille, Graham, and Detweiler,[17] and those which were reported by Salus [18] in which positive blood cultures were obtained in patients who suffered from symptoms which suggested neurasthenia, anemia, tuberculosis or gastric ulcer, many of whom were afebrile. Other observers, however, including Blumer,[8] doubt whether they should be included as true endocarditis.

Report on Group Four Cases

A series of four patients, which is not included in our group, may well be considered in this connection.

A child, age four, came under the observation of her physician in January, 1924, showing malnutrition,

* This is the second of two papers on this subject, the first having been printed in last month's issue of this journal.

enlarged tonsils and swollen cervical glands. The tonsils were removed in March, and on the following day the temperature rose to 102 degrees Fahrenheit. There was no history of rheumatic fever, and when first seen by the physician there was no sign of heart-valve lesion. A few days later the spleen became palpable and a high-pitched murmur developed which was best heard at the mitral area. Blood culture at this time showed growth of nonhemolytic streptococcus. The temperature gradually subsided, and after eight weeks in bed the child was apparently well. Eight months later she was in good health, but still showed signs of mitral insufficiency.

Another child, age five, came under observation in December, 1922, complaining of illness since the preceding September, when her parents had been told she had inflammation of the heart. There was no history of rheumatic fever, but she had had "influenza" a year before. At the time of admission there was moderate enlargement of the heart with signs of mitral insufficiency and decompensation. Blood culture was negative. While she was in the hospital she had frequent attacks of sore throat with slight rises in temperature, and six weeks after admission she developed signs of acute respiratory infection with high fever. At this time blood culture showed growth of nonhemolytic streptococcus. The acute symptoms gradually subsided, although the pulse rate remained high—120 to 130. She left the hospital at the end of sixty-six days after having normal temperature for a week. She was not seen again, but in May, 1925, her father wrote that she was much better, had gained fifty pounds in weight and was steadily becoming stronger.

A Russian woman, age thirty-three, came under observation in February, 1921, complaining that since a miscarriage three months before she had shortness of breath on exertion, swelling of the legs, and frequent urination at night. She gave a history of rheumatic fever several years before. The heart was slightly enlarged and there were well-marked signs of mitral insufficiency and mitral stenosis. There was a moderate anemia of secondary type with 45 per cent hemoglobin. There was a low-grade fever with rapid pulse, and the blood culture showed growth of hemolytic streptococcus. She insisted upon leaving the hospital after three days, and was not seen again, but there is a record in another hospital in San Francisco which shows that she had passed through normal pregnancy two years later.

The fourth patient was a man, age thirty-four, who came under observation in 1912 complaining of weakness, chills and fever. There was no history of rheumatic fever, but the patient said that when he was twenty years old he had been transferred from infantry service in the army to hospital service because he had heart disease. He acquired syphilis when he was twenty-three, but had some treatment. His heart was much enlarged and there were all the typical signs of aortic insufficiency.

He was moderately anemic, with a blood picture of secondary anemia, his hemoglobin was 46 per cent and his leukocyte count 4800. He continued to have chills and fever, and blood culture showed a growth of nonhemolytic streptococcus. However, examination of the blood also showed plasmodia of estivo-autumnal malaria, and after a vigorous course of treatment with quinin his temperature returned to normal and he left the hospital.

Nearly a year later the patient returned with a recurrence of symptoms and showing the same condition of the heart as before. On this occasion no blood culture was taken, but examination of the blood showed plasmodia of tertian malaria and he again improved rapidly after the administration of quinin.

Twelve years later he was still alive and working with the fishermen off the coast of Alaska.

It is improbable that one would be justified in classifying the last three of these cases as subacute bacterial endocarditis. There may be doubt about the first, in which the acute illness developed after tonsillectomy, because the signs of valvular disease and the enlargement of the spleen developed under observation, but even in this case the positive blood culture occurred during the course of an acute respiratory infection. In the other three, however, there seems to be no doubt that the bacteriemia was merely incidental in patients who had old heart-valve lesions, and that there was no active process in the valves at the time the blood cultures were positive.

Nevertheless, cases of recovery have been observed. Libman [4a] reported in 1923 that he had seen at least six cases which were apparently in good health from several months to seven years after their active infection. Billings [19] recorded three in a series of something more than one hundred cases and other observers have reported individual cases. Blumer [8] concludes from his survey of the literature that recovery may occur in from two to three per cent of cases.

Libman's fifth group [4c] consists of a few cases in which there was apparent recovery with subsequent recurrence. In one of our cases there was an afebrile period for nearly a month, and in another the patient felt quite well for six months between two acute febrile attacks. In a third case in our series the onset of the terminal febrile period was about seventeen months after hemiplegia due to embolism. The final outcome in these cases with recurrence has always been fatal.

Osler [13] stated in his Gulsonian lectures that "the protean character of the malady, the latency of the cardiac symptoms and the close simulation of other disorders combine to render the detection [of infectious endocarditis] peculiarly difficult," and the truth of his statement can be vouched for by all who have been faced with the early diagnosis of the condition.

It is unnecessary to enter into a detailed discussion of the differential diagnosis. Suffice to say that several of our cases were diagnosed as malaria, three as pulmonary tuberculosis, and one as typhoid fever, before the patients entered hospital. The early differentiation from tuberculosis may be especially difficult, as is shown by the fact that seven of our patients who came to necropsy had old tuberculous lesions in their lungs. We have had two patients in whom the condition was associated with active tuberculosis, one reported several years ago [16] in whom acid-fast bacilli were present in the sputum, and the one of this series who had Addison's disease.

THE WASSERMANN REACTION

There is one point, however, which has caused us some concern, and that is the association of aortic-valve lesion with insufficiency and positive Wassermann tests. There were six cases in our necropsy series in which a diagnosis of luetic aortitis had been made because of the association of aortic insufficiency and a positive Wassermann test, and in only one did necropsy confirm the diagnosis. Attention was forcibly drawn to this association several years ago by the case of a boy,

age fourteen, the son of parents who were nonluetic, who was receiving intensive antiluetic treatment because he had aortic insufficiency and a positive Wassermann reaction although he was running a febrile course of subacute bacterial endocarditis.

CASE REPORTS

A brief summary of three cases will illustrate this point:

Case 1.—A young man, age twenty-five, who had rheumatic fever when thirteen years of age and had heart trouble ever since, was admitted to hospital in January, 1924, stating that he had caught a severe cold six weeks before and had weakness, dyspnea and cough ever since, with "night sweats for the past ten nights."

There were signs of mitral and aortic insufficiency, and the spleen was palpable. He denied all history of luetic infection. While in hospital for a week he had a fever of from 99 to 100 degrees Fahrenheit every day. Three blood cultures were negative and the Wassermann test was negative in all antigens. A diagnosis of probable subacute bacterial endocarditis was made. He left the hospital against advice while still febrile and was readmitted in September of the same year. He stated that, although bedridden, he had been fairly well until four weeks before, when his severe symptoms recurred. Blood culture was again negative, but the Wassermann test was reported positive in all antigens with a note that the blood was slightly anticomplementary. There was no opportunity for a check because the patient died within twenty-four hours after admission. Necropsy showed subacute bacterial endocarditis involving the aortic and mitral valves, and no signs of lues in the aorta or elsewhere.

Case 2.—Another patient, a painter, age forty-nine, was treated in 1922 for lead poisoning associated with palsy, at which time there was a typical lead line on the gums and lead was demonstrated in the urine, although there were no characteristic changes in the blood. About a year later his compensation insurance was discontinued because a diagnosis of cerebrospinal syphilis was made and his aortic insufficiency was attributed to luetic aortitis. He entered another hospital in August, 1923, where it was found that the blood Wassermann test was negative but the cerebrospinal fluid test was positive.

A few months later, after a continuous illness associated with fever and chills, he entered Lane Hospital and we found unequal pupils, signs of aortic insufficiency and mitral insufficiency, with doubtful signs of aortic stenosis. The liver and spleen were much enlarged, more, in the opinion of some of us, than lues would explain, and he ran an irregular fever. While in hospital his blood count dropped from 4,612,000 with 70 per cent hemoglobin to 2,480,000 with 50 per cent hemoglobin, and on two occasions red blood cells were reported in the urine. Blood culture was negative on five occasions, the blood Wassermann was negative, but the cerebrospinal fluid still showed a + — — reaction. He was finally transferred to the San Francisco Hospital, where he died.

Necropsy showed subacute bacterial endocarditis with aortic and mitral valve involvement, but there were no signs of luetic infection in the aorta, in the meninges or elsewhere.

Case 3.—The third case of this series was a woman, age thirty-seven, a person of whom there could be no question of morality, and the wife of a man who denied luetic infection and whose Wassermann test was negative. In April, 1924, she gave birth to a normal baby after an uncomplicated, normal first pregnancy, and three weeks later, when apparently convalescent, was suddenly seized with hemiplegia. In hospital it was found that she had aortic stenosis and insufficiency and a positive blood Wassermann reaction. The Wassermann test of the cerebrospinal fluid was negative, there was no increase in the cells of the spinal fluid and the Nonne and Noguchi tests were negative. Nevertheless, antiluetic treatment was given persistently for several months.

In November, 1925, she reëntered the hospital and stated that several weeks before she had an attack of "influenza" and had been continuously ill since then. The heart signs were unchanged, but there was an irregular fever. Blood culture on November 4 was negative, but on November 5 was positive with *Streptococcus viridans*. She died a few days later.

Necropsy showed a very chronic form of bacterial endocarditis involving the aortic and mitral valves. There were no signs of syphilis in the aorta or meninges, and there were remnants of an embolus in the cerebral artery which had caused the hemiplegia.

These cases naturally arouse considerable doubt as to the significance of the Wassermann reaction in subacute bacterial endocarditis. Observations similar to these have been recorded by Landau and Held,[20] who report that among thirty cases of subacute bacterial endocarditis they obtained positive Wassermann reactions in six patients who were absolutely free from syphilis as confirmed by clinical examination and necropsy. Specific treatment aggravated the course in two of their patients. They conclude that the positive Wassermann test in these cases cannot be taken as indicating syphilitic infection.

BLOOD CULTURES

The importance of blood culture in confirming diagnosis has already been mentioned, although, as has been shown, the demonstration of streptococcus in the blood stream of a patient who has valvular disease of the heart, does not necessarily indicate that he is suffering from bacterial endocarditis.

Among our necropsy series of thirty-eight cases, fifteen patients had shown positive blood cultures during life, thirteen had negative blood cultures and in ten, blood-culture tests had not been made. Among the thirteen cases with negative blood cultures, a total of twenty-nine trials had been made, in one patient five tests, and in another four tests being negative. Nevertheless, streptococci were demonstrated in nine out of ten of the cases in which smears from the heart lesions were examined at necropsy.

Moreover, not all tests proved positive in the cases in which positive blood cultures were recorded. Among the fifteen cases in this group, eleven showed positive blood cultures on the first trial, but in three, one negative test was made in each before positive culture was obtained. In one instance we obtained one positive blood culture in eleven trials, seven tests being negative before, and three negative after the positive culture was obtained.

The history of this case is of considerable interest. The patient was the one referred to, who insisted that he had malaria. After repeated examinations for plasmodia had proved negative, Doctor Chamberlain of the department of radiology recalled that the late Dr. Rushmer Christianson of the University of California had been successful in a number of instances in demonstrating the presence of malaria in the blood after

exposure of the splenic area to x-rays. A trial exposure of our patient was, therefore, made, blood smears and blood cultures being taken before and after exposure. There was a moderately severe reaction, and the temperature rose to 104 Fahrenheit, two and a half degrees higher than the maximum temperature for several days preceding the test. Blood culture taken on the day following the exposure showed pure growth of *Streptococcus viridans,* the only positive culture obtained during the whole course of the illness. All the blood smears were negative for the malaria plasmodium.

It is doubtful whether this test should be recommended because the reaction was very distressing to the patient and the fever was much more severe for several days after it was made.

THERAPY UNSATISFACTORY

Insofar as treatment is concerned, there is nothing new to offer. Almost every method we could learn about was tried, but without any satisfactory results. Major [21] reported an apparent cure by the intravenous injection of gentian violet, but our attempts with the dye did not produce any permanent benefit. We have also tried mercurochrome, sodium cacodylate as recommended by Capps,[22] autogenous vaccines, simple transfusion, repeated transfusion from a donor who had received a series of immunizing injections of killed *Streptococcus viridans* which had been isolated from the blood of the patient, repeated injections of neoarsphenamin and quinin. In one case there was an increase in the red blood count and the hemoglobin after repeated injections of sodium cacodylate, but we could not see that there was any interruption in the course of the disease.

Autoserotherapy, which was recommended by Abrahams,[23] and autogenous vaccine combined with homologous serum prepared by using the patient's bacteria as the antigen, which was recommended by Hemsted,[24] Horder,[5] and Jochmann,[25] were not tried. The experience of many clinicians has been that stock streptococcus antisera are valueless, and we have not used them to any great extent. In fact, we must agree with Blumer [8] when he states, "A critical survey of the results of treatment cannot fail to leave one in a pessimistic frame of mind regarding any form of therapy so far developed."

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ANESTHESIA IN OBSTETRICS*

By W. J. Blevins, M. D.
Woodland

ANESTHESIA in its various forms has been a topic of great interest in obstetrical circles since 1847, when Simpson used ether to relieve a patient in labor. He replaced ether by chloroform after his discovery of the anesthetic properties of the latter drug.

EARLIER ANESTHETICS

For many years only these two well-known anesthetics were in use and, of the two, chloroform was the more popular. The reason for this choice was that a few inhalations would render the pains less severe and still permit the patient to utilize the pains. However, chloroform was not altogether satisfactory, as one or two inhalations after analgesia was secured resulted in inhibition or cessation of contractions. When chloroform was given in sufficient amount to procure complete relief from pain, the uterus was left so relaxed as to cause danger of postpartum hemorrhage. For the same reason the expulsion of the placenta was often delayed. It is generally conceded that chloroform is the most dangerous of the anesthetics in common use and on that account has fallen into disrepute during recent years.

Ether proved very satisfactory when complete anesthesia was desired, but it was irritating to the respiratory tract and frequently caused so much nausea that it could not be utilized so readily as chloroform. Another difficulty was that contrac-

* From the Department of Obstetrics, Woodland Clinic.
* Read before the Napa County Medical Society, Napa, March 29, 1927.

tions frequently subsided before the effect of the ether on pain was noticed. The profession has learned to fear ether unless certain that the heart, kidneys, and lungs are normal. Hence, we conclude that ether is not an ideal anesthetic in obstetrics.

Morphin and scopolamin later came into use and for a time was being used in many parts of the United States. The most serious objection to the combination was that the scopolamin frequently caused delirium. Labor was sometimes prolonged to such an extent as to cause dissatisfaction on the part of the family in spite of the fact that the patient did not remember having had pain. Another bad result was the effect of the morphin on the child. It frequently caused a narcosis resulting in death or in symptoms so alarming as to necessitate constant care for several hours after birth. After a thorough trial this type of anesthesia has been discarded in most localities.

Nitrous oxid and oxygen had been in use during all this time, but was not used generally outside of hospitals because of the expense of equipment and operation. The first small outfits that could be taken to the bedside were technically unsatisfactory. Heidbrink and Gwathmey have since devised small machines that are very reliable and convenient for use in the home.

Spinal anesthesia has been in use almost forty years. Varying results have been recorded concerning it. During the last ten or twelve years there have been many changes in the methods of administration and it still has many advocates. We think Cosgrove's method as described in the *American Journal of Obstetrics and Gynecology*, December, 1927, is the best procedure, but owing to the technical difficulties in administering and the short duration of anesthesia we do not use it.

We do not use regional anesthesia for the same reasons.

ETHYLENE

In 1923 ethylene came into use as an anesthetic. In obstetrics, where its use is practicable, its effects are ideal.

It has the following advantages:

1. Its administration is as safe as the administration of any anesthetic.

2. Induction is short, pleasant, and free from a stage of excitement.

3. There is no cyanosis.

4. Where there are cardiac abnormalities it is the safest anesthetic.

5. It is nonirritating to the kidneys.

6. It is nonirritating to the respiratory mucosa, so that it may safely be administered in the presence of acute colds, and post anesthesial pneumonia need not be feared.

7. No general depression follows its administration.

The disadvantages are:

1. Ethylene is highly explosive. It must not be used in the presence of fire or electrical instruments.

2. The outfit for its administration is too bulky to permit its transportation from home to home.

GWATHMEY METHOD

For obstetrical anesthesia Gwathmey has devised a procedure that, in the opinion of the writer, is distinctly superior to anything that has preceded it. The administration is per rectum by catheter, and intramuscularly by the hypodermic needle. The technique is as follows:

1. The patient is given a routine cleansing enema.

2. When labor has progressed to the point that there is a cervical dilatation of two centimeters and pains are recurring at intervals of from three to five minutes, an intramuscular injection of two cubic centimeters of sterile 50 per cent solution of magnesium sulphate combined with one-sixth or one-fourth grain of morphin sulphate is given.

3. If an analgesic effect is secured the dose is not repeated until the analgesic effect begins to wear off.

4. If no analgesic response is secured within twenty minutes the injection is repeated *without* the morphin. Coincidentally by rectum is given: quinin hydrobromate, grains 20; alcohol, ounces 3; ether, ounces 2½; olive oil to ounces 4.

5. Twenty minutes after the rectal injection a third intramuscular injection of 50 per cent magnesium sulphate solution without morphin is given.

If labor is prolonged beyond four hours from the first injection the entire procedure can be repeated with safety, except that the morphin is omitted if labor is expected within one hour, and it is better to have but ten grains of quinin in the last instillation.

IMPORTANT PRECAUTIONS

Do not begin injections or instillations too early. Give the injections of magnesium sulphate intramuscularly in the gluteal region, using a long needle during active pain. Do not inject in the outer side of the thigh. The patient must be watched while asleep, as she may turn from side to side and fall out of bed.

Make every effort to have instillations retained:

(*a*) By telling the patient how to coöperate. To be told to hold the mouth open during pain, and to draw up with sphincter.

(*b*) The patient to be told she will get relief if the instillation is retained.

(*c*) By preventing air from getting into the rectum while giving the instillation.

(*d*) By leaving clamped catheter in rectum for from ten to fifteen minutes after entire instillation is in rectum.

(*e*) By making pressure over the anus during the first three or four contractions after the catheter has been removed.

(*f*) By making no vaginal or rectal examination for at least one hour after the instillation.

ANESTHETICS USED IN EASTERN CLINICS

After all, the selection of an anesthetic is a matter of choice and convenience. During a re-

cent visit to several lying-in hospitals in the East and Middle West the following observations were made:

Swarz at Washington University was using morphin and scopolamin.

Swallen, across the city at Saint Anne's, was using ether.

At the Chicago Lying-in, DeLee, Cornell, and their associates used ether altogether.

At Johns Hopkins, Williams was giving nitrous oxid and oxygen.

At New York Lying-in, the Gwathmey method of rectal anesthesia was administered to every patient.

At Buffalo, Potter was using chloroform.

These different men were using the anesthetics mentioned routinely and successfully.

PROCEDURE IN HOSPITAL WORK

Personally I never use ether unless a general anesthetic is desired. Until five or six years ago chloroform was given with a specially made mask, in every delivery, as the child was passing over the perineum. I really think this was not sufficient, but it was the best and safest at that time. Usually the patient received the proper amount, but at times took in enough to get under the effect so deeply that I had to wait for pains to expel the placenta. I think there is little danger in chloroform when given in this manner.

Ethylene was found ideal, and could be given over long periods. It required but one or two whiffs to relieve the pain, yet the patient could assist contractions by bearing down. I am sure ethylene could be given through the entire labor, but we have not tried it except for the last hour or so. We are not using it at this time because our delivery room is not equipped for its use.

We have tried a variation of scopolamin and morphin narcosis and have had some success with it. By giving very small amounts of scopolamin delirium can usually be avoided. Its greatest failure is the fact that many times after the cervix was dilated there were no pains to expel the child. To correct this difficulty, we tried pituitrin in small doses without effect; recently we have used twenty grains of quinin in olive oil, similar to the Gwathmey method, leaving out the ether. This worked fairly well.

At present all cases except those in whom labor is nearly finished when they arrive in the hospital are given Gwathmey anesthesia, and this is repeated if labor is drawn out. After the cervix is completely dilated we give nitrous oxid and oxygen.

PROCEDURE IN HOMES

For the general practitioner away from the hospital I think the Gwathmey method alone is best because it can be used nicely either in the hospital or in the home, and furnishes safe and complete relief to the woman in labor. In some cases it hastens dilatation and increases contractions. I have yet to see the first patient in whom it seemed to delay labor. It can be administered by a physician alone in the country with greater safety than any other anesthetic. It can be procured put up in bottles containing a single dose. It can be repeated in part or in full if necessary. There is no need of an expensive outfit. It requires but little space to carry and is sure to give relief in any case where it is retained and there is time for it to be absorbed before delivery.

The only disadvantages are that, in a very small percentage of cases, the patient is made a little nervous and may say that it does no good, but she will invariably tell her friends of the great good it has done. I think every obstetrician should have an outfit and sufficient quantity of the anesthetic in his equipment.

I would stress the fact that one should remain with the patient after the administration or have a competent nurse continually on duty.

In the hospital, after dilatation, this method combined with the use of nitrous oxid or ethylene will be found most satisfactory.

Woodland Clinic.

AN OUTLINE OF PRENATAL CARE*

By Charles Harold Lewis, M. D.
Santa Monica

Discussion *by Elizabeth Keys, M. D., San Francisco; John C. Dement, M. D., San Diego; P. Martin Keller, M. D., Glendale.*

PRENATAL care is so well taught in the modern medical schools that not only obstetrical specialists, but all general practitioners who are endeavoring to maintain high standards of modern medical practice are now well versed in the various requisites of this branch of obstetrical care. There has been much written upon this subject in both textbooks and journals.

It is not my purpose to add needless repetition to the literature already accumulated. However, my own experience has taught that much of the instruction has not adapted itself readily to practical use in the office. Some duties must be performed each time that the patient is seen, others are necessary only during the first period of the pregnancy, while still others are not required until the final visit before delivery. The purpose of the outline herewith submitted is to provide a practical method for recording services that are due the patient, so that each one of these services is performed at the proper time.

In order properly to classify and outline the various items I have divided the periods of pregnancy into the usual ten lunar months, my patients being asked to report every fourth week. With the idea that the majority of patients present themselves for examination at the sixth or eighth

* Read before the Los Angeles Obstetrical Society, April 10, 1928.

An Outline of Prenatal Care

First Visit: 4th - 8th week	Second Visit: 8th - 12th week	Third Visit: 12th - 16th week
1. Menstrual, obstetrical, past and family history 2. Sex and weight of previous babies 3. Vaginal examination, diagnosis 4. Weight 5. Brassiere 6. Blood count and Wassermann	1. Physical examination 2. Dentistry 3. Pelvimetry 4. Urine 5. Blood pressure 6. Nausea and vomiting 7. Limitation of activities 8. Bowels	1. Blood pressure 2. Urine 3. Diet 4. Exercise 5. Weight
Fourth Visit: 16th - 20th week	**Fifth Visit: 20th - 24th week**	**Sixth Visit: 24th - 28th week**
1. Blood pressure 2. Urine 3. Weight 4. Date of quickening 5. Care of abdomen 6. Dress 7. Maternity corset	1. Blood pressure 2. Urine 3. Weight 4. Diet	1. Blood pressure 2. Urine 3. Weight 4. External examination 5. Diet 6. Exercise 7. Sleep and rest
Seventh Visit: 28th - 32nd week	**Eighth Visit: 32nd - 36th week**	**Ninth-Tenth Visits: 36th - 40th week**
1. Blood pressure 2. Urine 3. Weight 4. Care of abdomen 5. Care of breasts 6. Hospital arrangements 7. Nursing arrangements 8. External examination	1. Blood pressure 2. Urine 3. Weight 4. External examination	1. Blood pressure 2. Urine 3. Weight 4. External examination 5. Internal examination 6. Final instruction before labor

week, I have begun the prenatal care with the period of fourth to eighth week. Naturally there may be circumstances which may suggest some variation in the outline presented. For example, if the patient is very highly sensitive and objects to physical or vaginal examination it may be wise to postpone these procedures until the patient and doctor are better acquainted and until the patient's fears have been abated.

FOURTH TO EIGHTH WEEK

First Visit.—Ordinarily at the first visit I make it a practice to obtain a complete history, not only menstrual and obstetrical, but also the past and family history of the patient. If the patient has been confined previously it is important to ascertain the sex, weight, and other particulars with reference to previous babies and their delivery. As a rule the patient is most concerned at this time about the diagnosis. Hence the vaginal examination may be made and if possible the diagnosis settled. At this visit the weight should also be recorded. Since one of the first symptoms of the beginning pregnancy is the enlargement and heaviness of the breasts, it may be wise to suggest the use of a brassiere, one which will not compress the breasts and stretch the supporting ligaments, but one which will support them properly and prevent this unnecessary stretching.

EIGHTH TO TWELFTH WEEK

Second Visit.—At the next visit a complete physical examination should be made. There may be those who prefer to make this complete examination at the first appointment. However, with the other procedures that are necessary this is apt to make a somewhat tiring and unpleasant experience for the patient, and in the absence of outstanding symptoms it seems permissible to defer the complete physical examination until the second or third visit. Included in this complete physical examination is a careful inspection of the mouth and teeth. My practice has been to request patients to have their teeth thoroughly cleaned and examined for cavities and defects. If there are frank foci of infection in the mouth or teeth we all realize the importance of the eradication of such foci. I believe that all foci of infection which can be removed without danger to the pregnancy should be taken care of as early as possible. During the physical examination pelvimetry should be done, and this includes both the measurements of the inlet and the outlet of the pelvis. At this and each subsequent visit the urine is examined and the blood pressure taken. If hyperemesis is to be a symptom or a complication it is probably apparent during this time and appropriate instruction or treatment should be instituted. I think it also advisable to instruct the patient regarding the limitation of her activity. By that I do not mean that the patient should not exercise, but that she should be cautioned against long automobile trips, fast driving or driving over rough roads. Also that she should be cautioned against the more violent forms of exercise, such as swimming, playing tennis, golf, etc. She should be instructed as to the amount of exercise to be taken and also the form advised for her particular case.

One of the most important features which will require more or less attention throughout the entire period is that which has to do with the regulation of the bowels. Consequently at one of these early visits some instruction, either oral or printed, should be given with reference to a laxative diet, and also mention made of the habits of copious water-drinking, going to stool at a regular time, and the use of laxative fruit mixtures including senna leaves or similar preparation which do not have a tendency to cause drug-forming habits. With reference to urine examination I make it a

practice to provide the patient with a four-ounce bottle, properly labeled, in which to bring a specimen at the next visit. In this manner the urine sample is more likely to be remembered than if the patient is trusted to provide the container.

TWELFTH TO SIXTEENTH WEEK

Third Visit.—At those visits which occur between the twelfth and sixteenth weeks the usual routine blood pressure and urine examinations are made, and at this time the patient having recovered from the most troublesome period of nausea and vomiting, a change in the diet may be instituted. The diet should continue to be a well-balanced one containing at this period approximately 3000 calories among which should be the so-called "dietary essentials for growth" comprising 1000 calories each day in the form of one quart of milk, one raw vegetable salad, one egg, one citrous fruit or tomato, one cooked green leafy vegetable, one serving of whole-grain cereal or bread. The list enumerated contains the so-called protective foods which safeguard the bones and teeth, brain and muscles of the baby. During these visits I make it a practice to check up on the amount of exercise which the patient is taking. The majority of patients do not walk enough, and rarely do we find a patient who is working too hard or taking too much exercise. The weight should be taken again to ascertain if there is a tendency to obesity or undesirable increase.

SIXTEENTH TO TWENTIETH WEEK

Fourth Visit.—During the visits made between the sixteenth and twentieth weeks the usual blood pressure, urine and weight observation are made. At this time also the date of quickening may be mentioned. The care of the abdomen should receive some attention, instruction being given with reference to general massage of the abdominal wall to prevent (if possible) the unsightly striae which are so common, also to preserve the elasticity and muscular tone of the abdominal walls. Some instruction should be given with reference to the item of dress, particularly guarding against tight or constricting garments, the use of tight garters, etc. From this time on most patients should wear a properly fitting maternity corset. Instruction should be given with reference to this, and the type or brand of corset recommended by the physician.

TWENTIETH TO TWENTY-FOURTH WEEK

Fifth Visit.—From the twentieth to the twenty-fourth week, this time being midway in the prenatal period, the only items of importance are blood pressure, urine, weight, and continued supervision of diet, unless special questions have come up in the mind of the patient or unforeseen complications have arisen. This outline provides only for the care of the average, normal case; complications, as they arise, must be cared for appropriately.

TWENTY-FOURTH TO TWENTY-EIGHTH WEEK

Sixth Visit.—From the twenty-fourth week on the visits take place every two weeks, more frequently if necessary. During this period, in addition to the usual blood pressure, urine, weight, and dietetic instructions, an external examination should be made to ascertain the position and presentation of the fetus. Further attention should be given to the matter of exercise, and it is possible that some special measures may be instituted in order to give the patient a proper amount of sleep. She may require more rest than previously, and should be instructed accordingly.

TWENTY-EIGHTH TO THIRTY-SECOND WEEK

Seventh Visit.—At all visits which take place between the twenty-eighth and thirty-second week, blood pressure and urine examinations should be made and the weight of the patient taken. Attention should be called again to the care of the abdomen, and it is well to speak also of further care of the breasts. In addition to massage of the breasts, attention to the care of the nipples should commence. At one or the other of these visits some consideration should be given to the matter of hospital arrangements and definite instructions be given to the patient as to when and how to go to the hospital, etc. If the confinement is to be a home confinement, then nursing arrangements and details of preparation should be taken up with the patient. External examination should be made to ascertain if the position of the fetus is satisfactory and if not, then external version may be attempted.

THIRTY-SECOND TO THIRTY-SIXTH WEEK

Eighth Visit.—The visits which take place between the thirty-second and thirty-sixth week are occupied with the routine examination of the urine, the taking of the blood pressure and weight, the external examination and auscultation of the fetal heart.

THIRTY-SIXTH TO FORTIETH WEEK

Ninth and Tenth Visits.—The last two visits, which take place between the thirty-sixth and fortieth weeks, should include particularly the blood pressure and urine examination, although the weight may be omitted if desired since at this time it is very difficult to influence the weight appreciably. In addition to external examination, internal examination should be made to ascertain the contour of the pelvis and also to gain some idea of the relation between the latter and the head. In a primipara it is important to check pelvic measurements and to ascertain whether the head is engaged or capable of proper engagement. At the last visit, which takes place prior to the delivery, final instructions should be given concerning beginning of labor, the possibilities and circumstances which may arise, and instructions with reference to calling the doctor at the onset of labor and when unusual symptoms or complications arise.

VALUE OF DIAGRAM

Herewith is submitted an outline in diagrammatic form which may be of practical use in the everyday office procedure. Doubtless there are some who have on their history sheets or treatment cards spaces for these various items of prenatal care, and some plan of checking when they have been attended to. In my own experience I

have found that unless I have some arrangement of this kind it is difficult for me to remember whether or not I have given all the instructions necessary. Before I adopted this outline I frequently found that it was my impression that I had told the patient about various things of importance, when actually I had not done so. Conversely I have been embarrassed by speaking of the same item two or three times and had the patient say that I had already instructed her with reference to this matter. Accordingly I have prepared an outline which may be placed under the glass top of one's desk or in a convenient location, and if the approximate week of the patient's pregnancy is recorded on her history sheet or card at her first visit, it is a simple matter to compute from there on the approximate time of her pregnancy upon each occasion that she visits the office. Then by glancing down the columns of this outline, one may note the various subjects that should be considered at the corresponding time, may take them up with the patient and then dismiss them without further record. In this way attention is given at the proper time without taxing one's memory and without the risk of overlooking important points.

210 Medical Building.

DISCUSSION

ELIZABETH KEYS, M. D. (391 Sutter Street, San Francisco).—Doctor Lewis has so thoroughly and so clearly outlined the care of the prospective mother during a normal pregnancy that there is little left to say except by way of appreciation.

Looking back over the years it is an interesting pleasure to note the increasing medical contact with the personal details of the life of the patient. The young girl facing the problems of her first delivery, apprehensive, rather impressed by good and bad suggestions of neighbors, appalled by the total of a problem which, after all, need be met only a day at a time, presents an appeal to the doctor's protective instinct, and thus prenatal care becomes a time-consuming and often very wearing phase of obstetrics.

To the essential points laid down by Doctor Lewis is to be added an understanding of the varying personalities of patients—an understanding essential for intelligence of the physician and instruction of the patient. The small social problems of daily life, birthmarks, finances, preparation of the baby's outfit, prenatal influence, plans for the home schedule after return from the hospital, determination of sex—in all, a mixed multitude of items is presented for consideration in addition to purely medical advice.

The final total is that to which we rather proudly refer as prenatal care.

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JOHN C. DEMENT, M. D. (2525 Fourth Street, San Diego).—An orderly schedule of prenatal care such as laid down by Doctor Lewis offers valuable suggestion for anyone doing obstetrics whether it be a specialized practice or one case a year. It is a common experience to find that we have omitted some important instruction or failed to clear up some vague and erroneous idea in the patient's mind. This can only be obviated by the use of a definite routine such as the one suggested, combined with a written or printed instruction sheet. I am inclined to think that the use of Doctor Lewis' program will tend to save time and effort as well as to increase the efficiency of our prenatal care.

In her discussion Doctor Keys brings to our attention a phase of prenatal care which is of considerable importance and one which is overlooked or slighted in the majority of our cases. The mental attitude of our patients, their doubts and fears, all of the various factors enumerated by Doctor Keys play a large part in their pregnancy. This is especially true of the young primipara who is facing what is to her an unknown and terrifying ordeal. We may conduct a patient most scientifically and efficiently through her antepartum period and deliver her in the most approved manner, but her final estimate of our services to her cannot be favorable if we have allowed her to suffer nine months of fear and mental unrest.

❊

P. MARTIN KELLER, M. D. (Glendale Sanitarium and Hospital, Glendale).—The excellent program Doctor Lewis gives for the expectant mother has helped answer the call of the public we serve, for an efficient service to every pregnant woman. Mere attendance at birth, with a few postpartum visits, is no longer acceptable. Patients, relatives, and neighbors are quick to check over the care given by the physician. We owe it to those who are pregnant and under our care to give them such a program as is suggested in this paper.

It is certainly an advantage to have a complete history, a careful physical examination, routine taking of blood pressure, examination of urine, watching any great increase in weight, accepting any signals which may be shown us in our experience. This helps make the toxemias a thing of the past.

Influenced by the findings of Doctors Nuzum and Sansum of Santa Barbara, we give a basic diet of fruits and vegetables, and some milk. It is very satisfactory to see the blood pressure go down and the PH come up.

In connection with the clinic associated with the Los Angeles County Health Department each patient has a Wassermann, and in all necessary cases treatment is commenced immediately. This we find also helps decrease the infant mortality rate.

The paper makes a plea for better, more detailed and efficient service. The obstetrician must at times show the technique and judgment of the surgeon, the diagnostic ability of the internist, as well as a good knowledge of therapy and laboratory detail. It rests with the obstetrician to teach the public the value of prenatal care, and instruct the patient that she be physically fit before and during pregnancy.

BONE SARCOMA COMMITTEE OF THE AMERICAN COLLEGE OF SURGEONS*

By EDWIN I. BARTLETT, M. D.
San Francisco

THE beginnings of this committee date back to 1920. In the summer of that year Dr. E. A. Codman of Boston, at the suggestion of the parents of a youngster whom he was treating for sarcoma of the bone, and with the assistance of $1000 contributed by them for that purpose, inaugurated an investigation of the end-results in sarcoma involving bone. The first step was the securing of the coöperation of the two great surgical pathologists, Dr. James Ewing of New York and Dr. Joseph C. Bloodgood of Baltimore. The work of this self-appointed group immediately attracted the attention of the American College of Surgeons and resulted in the creation of its bone sarcoma committee, composed of the three men enumerated. The College also set aside sums of money adequate for carrying on the work.

Doctor Codman acted as registrar and housed the collection in Boston up to 1925. Upon his

* Read before the Pathology and Bacteriology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

resignation Dr. Dallas B. Phemister of Chicago was appointed and the records were transferred from Boston to the offices of the American College of Surgeons in Chicago where they are now kept under the supervision of Dr. Bowman C. Crowall of Chicago, who acts as secretary and registrar. In 1927 the committee was enlarged from three to ten members, these being chosen geographically, as representatives of the larger medical centers in this field. Some of the members are pathologists while others are surgeons, but each one through his relation to a teaching institution or through his contributions may be termed a surgical pathologist.

TABLE 1.—*Showing Cases Registered up to May 1, 1928*

Metastatic tumors	32
Periosteal fibrosarcoma	19
Benign osteogenic tumors	21
Malignant (osteogenic sarcoma)	372
Inflammatory conditions—Bone cyst, etc.	63
Benign giant cell tumor	216
Angioma—Benign, malignant (angiosarcoma)	14
Ewing's tumor	71
Myeloma	24
Unclassified	26
Questionable—Ewing's tumor or osteogenic sarcoma	25
	883

ORIGINAL PLAN OF WORK

The original aim of the committee as heretofore stated was the study of the end-results in bone sarcoma. After pooling their cases and their knowledge of this condition the committee sent out invitations to the members of the College to register all cases of supposed sarcoma of the bone so that studies could be made which would be based on larger collections of material.† The response was prompt and generous, a large number of cases being immediately reported. As high as 50 per cent of this first group of cases thus to be reported, however, proved to be nonsarcomatous or not tumors at all; and in recent years many members of the profession have reported all their cases of bone tumor whether diagnosed sarcoma or not. This has added a new angle to the work of the committee, that of the study of bone tumors as a whole.

LATER PLANS

Consequently the present aims of this body are much more far-reaching than those originally held. They include, among many others, four outstanding objectives. The first is the securing of a large group of all types of bone tumors and allied conditions. The great stumbling-block in the past has been the scarcity of cases in any one man's collection, which has precluded exhaustive study and has led to much difference of opinion. To date a total number of 883 cases have been reported. The following table shows the number in each main division. This sizable collection has helped to finally solve problems which have been the source of much controversy for years. Thus, for instance, the 216 cases of giant cell tumor and the twenty-six cases of inflammatory lesions have made possible intensive studies which have led to the conformation of the facts that a giant cell tumor is benign and that a bone cyst is not a true neoplasm.

A second objective is the maintenance of a group of experts, now represented by the committee on bone sarcoma, to review each case submitted and decide on its classification. For the present the three men who constituted the original committee are at our command to give continued service. It is quite imperative that others be trained to take their places, when they feel they can no longer bear the major responsibility of the work. The training of the members comes in the review of the cases submitted. The typical cases are classified by the chairman or registrar, while each atypical or difficult case is passed on to the individual members of the committee, who review all the data and submit in writing their opinions. If at the end of the year there is disagreement the disputed cases are gone over by the committee, in session at the annual meeting of the College, and an attempt is made to come to a decision. Also at this time all diagnoses made during the year by the central office representatives are reviewed, and either confirmed or corrected. The classification adopted for the time being is given in Table 2.

A third objective is the establishment of a great university, as it were, to which men may come from all parts of the world to study the collected data, consisting of x-ray pictures, microscopic sections, gross material, and written opinions of highest authorities. Out of this university of research it is hoped will come, under the authority

TABLE 2.—*Present Classification of the Committee on Bone Sarcoma*

Metastatic tumors
Periosteal fibrosarcoma
Osteogenic tumors
  Benign—Exostosis, osteoma, chondroma, fibroma
  Malignant—(Osteogenic sarcoma)
    a. Anatomic types
      Medullary and subperiosteal
      Periosteal
      Sclerosing
      Telangiectatic
    b. Undifferentiated sarcoma
Inflammatory conditions that may simulate bone tumors. (Myositis ossificans, osteoperiostitis, osteitis fibrosa, etc.)
Benign giant cell tumor
Angioma—Benign, malignant (angiosarcoma)
Ewing's tumor
Myeloma

† Members of the profession who wish to report bone lesions mentioned in this paper can obtain the necessary blanks by making request therefor from the American College of Surgeons, Department of Clinical Research, 40 East Erie Street, Chicago, Illinois.

of the "faculty," monographs and textbooks for the profession at large.

RESULTS

The accomplishments of the committee to date are indeed gratifying. The credit must go very largely to the original three members of the committee. An outstanding advantage has been the development of a classification, thus creating a common language. A very great hindrance heretofore has been the duplication of names for a single condition. This duplication has led to serious misunderstandings even between the leaders of the profession in the fields of surgery and pathology. For instance, one individual might mean a malignant disease by the use of a certain term such as myeloma, while another using the same nomenclature might mean a benign tumor. Or a term might imply a malignant condition, such as giant cell sarcoma, when a benign state was understood. Furthermore, it has not been an uncommon experience where a surgeon has sent material to more than one pathologist for him to receive a variety of diagnoses usually all meaning the same disease but hopelessly confusing the surgeon. Of course the classification which has been developed is probably quite imperfect and in the future will doubtless have to be changed, but for the present it serves as a good working basis.

A secondary product of the work of the committee, but of equal importance, are the contributions by the members of the committee or others based on the studies of the collected material. Three of these which stand out from among the others in importance are: (1) Doctor Codman's book [1] summarizing the criteria for the establishment of the diagnosis of osteogenic sarcoma and including a table of the five-year cures of osteogenic sarcoma; (2) a monograph by Doctor Kolodny [2] on "Bone Sarcoma," which critically analyzes the material of the registry and places in concrete form all present knowledge and opinions regarding this subject; (3) a monograph by Doctor Connor [3] entitled "Endothelial Myeloma, Ewing," which discusses the first sixty cases in the registry, and adds much valuable information to this disputed subject. Each one of these contributions is a classic, and collectively they have furnished to the profession at large more helpful information than is to be found in the complete collection of prior discussions on these subjects. Codman's book especially is recommended as a pocket volume which every student and member of the profession should not only possess but should commit to memory. Kolodny's article treats of bone sarcoma and giant cell tumor primarily, attempting by careful weighing of evidence to show the basis for our conclusions regarding these conditions.

490 Post Street.

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MYASTHENIA GRAVIS

REMARKS ON THE AGE INCIDENCE—REPORT OF A CASE

By MARK GERSTLE, JR., M. D.
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ACCORDING to Garrison,[1] the first description of myasthenia gravis was by Willis in 1865. This was followed by that of Wilks [2] in 1877. Jolly,[3] in 1891, was the first to establish the malady as a clinical entity, and at that time described the characteristic reaction of the muscles to electrical stimuli which is often called by his name.

The symptomatology and clinical findings are well known at present, and will not be discussed here.

AGE INCIDENCE

Redvers Ironside,[4] in his description of the disease in the *Oxford System of Medicine,* states that no case has been observed to commence before puberty. In 1908 Booth [5] collected the case reports of 250 patients, the youngest of whom was an infant of twenty-three months, and the oldest a patient of seventy years.

The writer has collected sixty-seven records of patients who suffered from this disease in the National Hospital, Queen Square, London, between the years 1900 and 1927. The youngest was a child of six years, and the oldest a man of sixty. The following comparative data are therefore presented:

Comparison of Two Series

	BOOTH'S CASES (250)		NATIONAL HOSPITAL CASES (67)	
Age Periods	Number	Per Cent	Number	Per Cent
1–10 yrs.	5	2	2	3
10–20 yrs.	34	13.6	12	18
20–30 yrs.	85	38.0	31	46.2
30–40 yrs.	58	23.2	8	12.2
40–50 yrs.	40	16.0	13	19.0
50–60 yrs.	12	4.8	1	1.5
60–70 yrs.	6	2.8	0	0
70–80 yrs.	1	0.8	0	0

It can be seen that there exists a fair degree of similarity between the two series. In Booth's series, however, is found a much younger patient than any seen at the National Hospital, and he also has seven patients after the age of sixty, which age period does not occur in the National Hospital series. In both sets of figures the commonest age of onset is shown to be the third decade, and it is also clear that cases occurring before puberty are rare. That they do occur, however, is obvious.

It, therefore, seems worth while to report in some detail a case occurring in a boy of ten and one-half years of age, seen recently in the Out-Patient Clinic of Dr. W. J. Adie, at the National Hospital, London.

REPORT OF CASES

Donald B., aet. ten and one-half years. Admitted to the National Hospital May 20, 1927, on the service of Dr. W. J. Adie.

Complaint.—Double vision; generalized weakness of movements.

Duration.—Ten days.

Present Illness.—He was in every way healthy until May 10, 1927. On the evening of that day he complained of a frontal headache, and passed a rather

restless night. On May 11 he went to school in the morning feeling as usual, but returned home in the afternoon saying that he had seen everything double all day long. This, however, was the only complaint. On May 12 he came to the out-patient department to see Doctor Adie, and his mother had great difficulty in getting him home again, as his legs became so weak that at times they refused to bear his weight. During the intervening few days he had grown gradually weaker, and his eyelids had drooped conspicuously. There had been no actual limitation of the range of movements due to weakness, but he had frequently had to raise his eyelids with his fingers before he could look straight ahead. For the past four days he had been confined to bed, but, as far as his mother knew, had no fever, headache, or vomiting.

Previous Illnesses.—Pertussis, measles. No diphtheria.

Family History.—Irrelevant.

Present State.—A well-developed boy, rather pale. Lies comfortably in bed in any position without undue restlessness. Sleeps and eats well. Normal daily bowel movement.

Mental State.—A tendency to be irritated by questions, otherwise cheerful. His intelligence is good, and he gives a clear account of his illness. Coöperation is excellent.

Speech.—Slightly blurred, and with an explosive tendency which becomes more pronounced after he has been speaking for a time.

Cranial Nerves—1. Normal. No anosmia.

2. Vision 6/6 right and left. Retinae normal. Right disk normal. Left disk shows some blurring of the inner margin. No venous engorgement.

3, 4 and 6. No diplopia complained of now. The pupils are central, circular, and equal. They react sluggishly to light, but well to accommodation. The external ocular movements are poor in all directions: upward, downward, inward, and outward. The most marked limitation is on looking upward. Convergence is occasionally poor, and sometimes normal. No nystagmus. There is bilateral ptosis with voluntary elevation of the eyebrows, more marked on the left.

5. Motor: The masseters and temporals contract so poorly that the patient's bite was incapable of causing pain to the examiner's finger which had been placed between the teeth. The jaw opened in the midline. Sensory: normal to all stimuli.

7. The left angle of the mouth is held lower than the right. The facial movements, on the whole, are very weak. The eyes can be easily opened against resistance. Whistling is impossible. The cheeks can only be partially distended with air. The eyebrows are very poorly elevated at their median ends.

8. Hearing is normal. A. C. greater than B. C. Weber not lateralized. No tinnitus, vertigo, or aural discharge.

9, 10, and 11. All movements equally weak right and left.

12. The tongue protrudes in the midline without tremor, spasticity, or fibrillation. Can be inserted with force into either cheek. No atrophy.

Motor System.—Trunk: Both flexion and extension of the head are weak. Lateral rotation is stronger, but not normal. The abdominal muscles contract well on ventral flexion of the trunk. There is no deviation of the umbilicus. The erector spinae muscles are very weak, and sitting up is almost impossible. No bulging of the flank on coughing.

Arms: All shoulder movements are very weakly performed against resistance. There is no weakness observed of isolated muscles. All are full in range when actually performed, but are characterized by excessive feebleness. There is no atrophy and no fibrillations were observed. None of the muscles contract well on voluntary effort. There is no ataxia or irregularity of movement apart from that due to weakness.

Legs: The hip movements are especially weak on abduction and adduction. Flexion of the hip is fair. In the knee, extension is better than flexion. In the ankle, plantar flexion is better than dorsiflexion. Both are bilaterally weak, however. No atrophy or fibrillations noted.

Sensory System.—Absolutely normal throughout to all forms of cutaneous, bone, deep muscles, and joint stimuli. No astereognosis.

Reflexes.—Both corneals were normal. The biceps, triceps, and supinator jerks of both arms were not obtained. The upper and lower abdominals were normal. Both knee jerks were sluggish, but obtainable. The ankle jerks were normal, and the plantar responses were flexor.

Gait and Stance.—Normal.

Sphincters.—Normal without impairment of control. There are no trophic changes.

The cardiac, respiratory, gastro-intestinal, and genito-urinary systems are normal throughout.

The temperature, while in the hospital, varied from 97 to 99 degrees. The urine remained clear throughout his stay.

An x-ray of the thymus was reported normal.

An electrical reaction of the affected muscles showed response to both currents.

PROGRESS NOTES

The patient improved after a week in the hospital under rest and symptomatic treatment. He was soon able to sit up alone for a short time. He gradually gained in muscular power and strength, but was very easily fatigued by the slightest exertion even on discharge from the hospital. Doctor Adie recalls that, while in the hospital, the patient had several acute respiratory attacks, characterized by labored, rapid breathing. He was discharged on August 25, 1927, having been in the hospital a little over three months. His condition at that time was described as "improved."

COMMENT

The writer saw the patient on May 4, 1928, in Doctor Adie's Out-Patient Clinic at the National Hospital. This was about nine months after his discharge from the hospital. He now complained of listlessness, and an abnormal tendency to fatigue at the end of a day of average activity. The boy appeared in excellent health. His reflexes had all returned to normal and were active and equal. There were no ocular palsies, and no trace of muscular atrophy. The strength of his bite was normal. The only abnormal finding in the general and neurological examination was the presence of the myasthenic type of smile, in which the corners of the mouth turned down instead of up, producing a form of snarl.

SUMMARY

1. Myasthenia gravis can, and does, occur at any age.

2. Cases occurring before puberty are very rare.

3. A case in a child of ten and one-half years is here reported.

490 Post Street.

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ANESTHESIA FOR HEAD OPERATIONS*

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OPERATIONS about the head, especially those on nose and throat, are being performed with increasing frequency and skill, and it may be of interest to review anesthetic procedures and preferences for such cases, especially for those presenting unusual difficulties. Anesthesia for brain surgery will not be discussed. The figures mentioned will be for the period from January 1, 1925 to May 1, 1928, a space of three years and four months, and cover 4238 cases, given by the various members of our staff.

ANESTHESIA FOR EYE WORK

When a general anesthetic is to be used for eye operations, the matter of preparation of the patient is of vital importance. In these cases it is especially necessary that no food be allowed before operation for at least six to eight hours and nothing to drink for four to six hours, as vomitus may run into the eye, contaminating the wound; and the strain and effort of vomiting may eviscerate an eye which has been incised as in cataract operations.

When not contraindicated, as in glaucoma, a preliminary hypodermic of morphin and atropin is a valuable aid, for eye patients are usually more nervous than the average and often seem to have a larger amount of mucus. When mucus is excessive during the operation, suction is of great value.

The anesthetist must keep out of the operator's way, and accomplishes this most readily by remaining on one side about at the level of the patient's forearm. The usual signs of anesthesia can seldom be noted, as the face and eyes cannot be observed without interfering with the operative work. The anesthetist is accordingly obliged to follow the respiration as the main and almost the only guide for depth and maintenance. Color can be watched at the finger nails, and the pulse at the wrist.

When ether is used, our favorite technique is to anesthetize the patient with a nitrous oxid-oxygen ether sequence, and then insert a wire airway and administer ether-oxygen vapor through a mouth hook placed at the side of the airway. It has been found advisable to support the chin with one hand during the course of the operation, for although the position of the head and the light anesthesia are usually such that chin and tongue are not so far relaxed as to obstruct breathing, nevertheless the surgeon's work is so delicate that he must frequently support his hand to steady it and have a convenient fulcrum. Even the gentlest pressure is often sufficient to depress the chin and either to stop respiration temporarily or, in patients with much mucus, produce irritation of the pharynx with resultant coughing and vomiting.

Fifty-five of the above eye patients were given N_2O-O; a few, because it was indicated by some condition as diabetes, but most because the operation was short, or the patient desired gas, or because the eyeball was to be incised during the operation and it was desired to have the return to consciousness smooth and uneventful with no, or at least a minimum of straining, moving about or vomiting. The latter operations are performed with the patient on the ambulance on which he has been brought to the operating room, so that he will be moved as little as possible later. Gas anesthesia is usually continued until after the pads and bandages have been applied to the eyes to keep the patient asleep until the dressings are completed and firm.

The mouth gas mask has proved convenient for use during eye work. It permits the anesthetist to be sufficiently out of the operator's way, and in eye work is simpler to use than a nasal or mouth tube for intrapharyngeal administration. Plugging the nostrils with cotton pledgets as soon as the ordinary mask has been removed and the mouth inhaler inserted, is of help. The gas pressure used is a little higher than for the ordinary case with closed mask, but considerably less than that needed for dental anesthesia.

When gas anesthesia is chosen for eye work we often instil a drop or two of 4 per cent cocain in the eye after the anesthetic has begun. This facilitates work, especially in nervous patients.

ANESTHESIA FOR NOSE AND THROAT WORK

In the period under consideration 2824 tonsillectomies were performed under a general anesthetic. This figure does not include the adenoidectomies or other nose and throat work. The greater number of these general anesthesias were in children, as most of our specialists prefer local for adults. They use a general anesthetic for an adult who has had a previous tonsillectomy, who is unduly nervous or who has a history of taking local anesthetics badly.

The routine anesthesia consists of an induction with N_2O-O ether sequence followed by ether-oxygen vapor given through a mouth hook hanging at the side of the mouth or cheek. This method has been found very satisfactory. More or less ether as required can readily be given by regulating the flow of oxygen (or air) through the ether. Two bottles of ether are used in sequence that a stronger vapor may be had when desired.† This obviates the necessity of heating the ether except in rare instances.

It has been our practice to maintain a light anesthesia with reflexes not completely abolished. Such a level is often more difficult to hold than a deep narcosis, for in some patients the margin of anesthesia is very narrow. The tonsillectomist must likewise become accustomed to working in a throat in which the reflexes are still somewhat active. We feel repaid for our added trouble and effort in the benefit to our patient. In the long run we are convinced that these patients can partake of fluids and of food sooner, are less nauseated, and are brighter and stronger on leaving the hospital next morning than are those who had a profound anesthesia, which abol-

* Read before the Anesthesiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

† "Flexibility of Ether Vapor Anesthesia," Rethwilm. California State Journal of Medicine, 21, 519, December, 1923.

ishes all reflexes completely. These advantages are secondary to the main reason for a light anesthesia in this work, which is to insure against aspiration. We feel the effort is worth while, and even the physicians notice and remark that their patients make quicker and better recoveries than the deeply anesthetized ones.

Gas anesthesia for tonsillectomy has been employed for a number of cases when indicated. One of the last of these was a boy, P. H., age twelve years, who has diabetes. The anesthesia was maintained satisfactorily throughout the operation, which lasted about an hour. Throat reflexes were moderately active like those of our ether cases; suction was used as for any other tonsil case. The child was awake at once and was in excellent condition.

For radical and intranasal sinus operations the same technique is used as for eye work, though as a rule the patient is kept slightly more deeply asleep for radical work. A postnasal plug is valuable for preventing blood and secretions from reaching the pharynx. Very occasionally, especially for antrum wash, the mouth may be kept open with a Sewall or Davis mouth gag while work is done, suction being used to remove any fluid that reaches the pharynx.

Intranasal antrum operations may be done very satisfactorily with N_2O-O, using the mouth inhaler for the gas. So far it has been used by us only when especially indicated, and not for preference. The added expense of gas over ether is often the deterring factor.

The same holds true of mastoid work. Here gas is particularly desirable, for even if the chest is clear, these patients have usually had a fairly recent tonsil, sinus or chest infection which would make N_2O-O preferable to ether. Even chronic cases often come to operation because of an exacerbation following a cold. Moreover most mastoid cases easily have enough relaxation with N_2O-O only, without a trace of anoxemia, for after the skin incision has been made, the work is not painful. If the patient is resistant a little ether may be added to the gas. The amount may be almost negligible, and even if more is required, the total ether used would be much less than for an ether anesthesia. In the 298 cases we anesthetized for mastoid in the period under consideration, 218 had ether and 80 had N_2O-O.

For our esophagoscopies (32), laryngoscopies (25), and bronchoscopies (11), during these three and one-third years, ether-oxygen vapor was given. In these cases it was found advantageous to have the patient deeply asleep before work began, thus enabling the various "scopes" to be inserted without delay. Of these cases the foreign body and cord tumor ones were most interesting, but no more difficult. The relaxation of muscles obtained with an anesthetic often makes it easier to remove the foreign body, as is illustrated by the following report:

Mrs. G. H. N., age thirty-four, weight 120. Given morphin sulphate 1/4 and atropin 1/150. Fishbone had lodged in lower part of pharynx, near larynx. Repeated efforts to remove this had been made all afternoon at another hospital and at a laryngoscopist's office. Although the bone had been grasped on one occasion, it had been impossible to remove it. The anesthetic was begun at 6:55 and the patient was put deeply asleep. With all muscles relaxed and reflexes abolished, the fishbone was quickly obtained and the patient was taken from the table in good condition at 7:12.

It will be impossible to mention all the smaller groups of cases, such as fractures of the nose, which can readily be corrected under gas anesthesia given through the mouth; nasal plastic operations, all of which happen to have been done under ether vapor; myringectomies, which are almost always performed under gas. Even for adenoidectomies, gas can be given using the nasal inhaler, as for dental work.

ANESTHESIA FOR DENTAL WORK

Dental cases, besides extractions, include impacted molars and bone cysts. Of the 242 cases in the period considered, 187 were with gas. When ether is chosen it is given intrapharyngeally with a catheter through one nostril, but for N_2O-O the nasal inhaler is used with good results. Skillful packing of the tongue on the part of the dentist is a decided aid. It not only prevents blood and particles of fillings and teeth from reaching the pharynx, but avoids constant escape and waste of the nitrous oxid and oxygen.

For fractures of the jaw it is also desirable to use gas, given as in dental cases. A choice of gas is made that the patient will be awake at once and have no or almost no nausea. Vomiting with mandible and maxilla wired together can cause aspiration with immediate death from asphyxia or later from pneumonia. We have often given gas for this with a nasal inhaler, but rather prefer the intrapharyngeal method, as there is less difficulty with mechanical obstruction to respiration.

ANESTHESIA FOR HEAD SURGERY

Routine cases will not be described, as those where ether was used or where N_2O-O was given in the usual manner with a mask, such as tumors about the chin, neck, cheek or head. One recent anesthetic for tumor of the neck, just under the mandible, is of interest.

Mr. J. C. G., age sixty-five, weight 210. Preliminary morphin sulphate 1/6 and atropin 1/150. Anesthesia from 8:20 to 10:50. Dissection of tumor of neck was in progress under gas anesthesia given with a mask. The patient did not breathe well, as tongue and position of head and pressure near trachea combined, mechanically prevented gas from passing tongue and reaching lungs, even when gas pressure was increased. A large catheter was inserted through a nostril and gas administered intrapharyngeally with marked improvement. Patient returned to room in good condition.

I wish especially to speak of cases of carcinoma of the jaw or tongue or mouth. These are frequently given ether vapor intrapharyngeally through a catheter. But in any of these, and especially when a cautery is used, it is convenient to administer gas intrapharyngeally and pack the pharynx and back of the mouth to catch bleeding, pieces of tissue, etc.

If gas is given by nasal inhaler we have to leave the back of the pharynx free to force N_2O-O past

into the trachea. Though this is satisfactory for carcinoma of the lip and the like, for other cases it would cause some spattering of blood forward and might allow débris to drop into the pharynx or reach the trachea. In addition, while a cautery is in use some of the hot fumes might be inhaled. If we give it intratracheally we increase the danger of bronchitis and pneumonia. The intrapharyngeal method works well and adds no risk.

For this work the patient is anesthetized in the usual manner with the regular gas mask. When well asleep a large rectal tube is inserted through a nostril. A No. 28 or 30 tube is used if possible. That is attached to the adapter and the latter to the hose of the gas machine. It is best to have the valve of the adapter adjusted so each exhalation will raise it. The gas pressure must be sufficient that the patient will receive enough fresh gases at each inspiration without having to make an effort to draw the breath, and not too much positive pressure to injure the lungs. The proper valve adjustment helps prevent the latter, for the valve would remain raised if the pressure is great.

This past year there were a few cases of special interest in that a cautery was used in the mouth for an extended period. The following are outlines of three anesthesias on two of these patients:

Mr. P. K., age fifty-four, weight 150. Given morphin sulphate 1/6 and atropin 1/150. Cautery excision of tongue for carcinoma on September 22, 1927. The anesthetic began at 9:13. The patient was very resistant and about three breaths of ether were added to the gas near the start, but none after 9:28. The anesthetic stopped at 11 a. m. The actual cautery was used continuously from 9:45 to 10:42. The anesthesia was entirely satisfactory. The patient's condition at the close was good and he awakened at once. His recovery was uneventful, and he left the hospital in three weeks.

Mr. J. P., age forty-four, weight 155. Preliminary morphin sulphate 1/4 and atropin 1/150. Cautery excision of carcinoma of the palate and jaw on November 29, 1927. Anesthesia from 12:35 to 1:50 p. m. N_2O-O only, given by intrapharyngeal method. Course of anesthesia and condition at close good. Recovery uneventful. Patient left hospital in fourteen days.

Same patient operated for recurrence at original location on January 14, 1928. Preliminary morphin sulphate 1/4 and atropin 1/150. Gas only, given intrapharyngeally from 9:25 to 10:33 a. m. Actual cautery used. Anesthesia and condition at close good. Patient left the hospital in nine days after an uneventful recovery.

CONCLUSIONS

1. Ether or nitrous oxid-oxygen or a combination of the two can satisfactorily anesthetize all patients for head operations. The technique used must be adopted to the individual case.

2. Eye operations are best performed under N_2O-O. Though this adds to the difficulty of administration, the minimum or total lack of vomiting in a properly prepared patient and the speedy recovery are compensatory.

3. Nitrous oxid-oxygen would be the ideal anesthetic in many cases where ether is still used frequently, especially for mastoid and dental work and tumors about the head and neck.

4. When a cautery is used or when breathing is mechanically obstructed, nitrous oxid-oxygen can successfully be given intrapharyngeally.

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THE LURE OF MEDICAL HISTORY

INVOCATIO MEDICI

Code of Fushi Ikai No Ryaku, Oath of Hippocrates, and Supplication of Maimonides

By SALVATORE PABLO LUCIA
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PHYSICIANS of the past had much time for philosophical reflection. Many applied their beliefs to the practice of their art. Some were interested in material principles, while others were disposed toward ethical or spiritual concepts. The doctor of medicine has either outlined his own moral code or subscribed to an ethics commensurate with the social order of his time; nevertheless professional conduct has been remarkably uniform from antiquity to the present era.

Just as religion and life's philosophy vary with the individual, so vary his principles concerning moral values. The expression of these may take the form of a code, a set of rules by which one abides. In its usual intension, a code is material and as such pertains to the physical nature of man in his relation to society and the universe. It has no spiritual appeal. One does not swear to uphold an ethical doctrine, but thinks of himself as the center about which all of his relations revolve.

The next higher form is the oath, a set of principles by which one swears to abide. An oath is a solemn affirmation regulating man's behavior toward society by stressing the ethics of the era in which it is formulated. An oath does not imply any spiritual appeal. The regular medical students of the Hippocratic era acknowledged some form of the oath before admission to apprenticeship. They proclaimed that they would abide by the principles of the guild of their master, not being responsible to society as a whole. It has been customary in the past for all medical students to solemnly consent to the Oath of Hippocrates before receiving the medical degree. We still recognize it in spirit, but not in letter; nevertheless the Oath remains a remarkable historical and literary document.

The highest form is the invocation, which is a spiritual appeal to a supreme power, and as such is immutable. He who subscribes to an invocation is responsible only to his God.

Having pointed out the differences between the code, oath, and invocation, what are the relative merits of each in the realm of medicine, and which can be considered most fundamental?

THE CODE—MATERIALISTIC ADVICE

Recently Tashiro and Fischer[1] translated the Fushi Ikai No Ryaku of Koan Ogata into English. Koan Ogata was a famous Japanese physician of the early nineteenth century. He, a man of deep ethical sensibilities, wrote his medical code, based on the Supplement (De Verpligtigen des Geneersheers) to Hufeland's Enchiridion Medicum, as a guide by which to conduct his practice.

FUSHI IKAI NO RYAKU

"I. The physician lives not for himself but for others. This is the essence of his profession. Do not look for fame or profit. Work to save others though you lose yourself. Maintain life, restore the sick, and ease the suffering of men. You have no other object.

"II. Face to face with a patient, remember only that he is sick, not his station or his wealth. Com-

pare the rich man's handful of gold with the poor man's tear of gratitude. Which will you have?

"III. When practicing your art remember that the patient is the target, not the bow or arrow. Do not play with him. Think without prejudice; consider with narrowed eyes.

"IV. Besides being modern and erudite, learn how to win the confidence of your sick man through word and action. But let these be not superficial, casual or pretentious. Do not mouth deceptive and queer hypotheses.

"V. At night think over the happenings of the day. Record your experiences and observations. Such benefit the patient and the world.

"VI. One deliberate examination and one visit are superior to many careless examinations and many visits. But do not refuse to make frequent calls on the ground that such degrade your dignity.

"VII. Even when the disease is incurable, understand the sufferings of your sick man and do your duty by trying to maintain his life. It is inhuman to surrender. Even when you cannot save him, you can comfort him. This is the human art. Try to prolong his life even though it be for but a moment. Do not tell him of the hopelessness of his state. Through your discretion in word and manner you will not let him guess the real situation.

"VIII. Make the patient's illness cost him as little as possible. Of what use to save his life when you take away the means of its maintenance?

"IX. The physician must win the good will of the public. However skillful your science, however dignified your conduct, you cannot impart to advantage the good within you unless you hold the confidence of your people. You must understand man and the public's state of mind. You who are interested in life, who must listen to naked truth, who must hear the confession of shameful sin, need character and gentleness. Avoid gossip. Silence is better. Nor need I warn you against gambling, drunkenness, sexual excess and anxiety for fame.

"X. Respect and love the colleagues of your profession. But, if impossible, at least be patient. Do not discuss other physicians. To narrate their shortcomings is the shame of the wise man; to talk of their defects is the business of the small. A moment's discussion of a single error may work perpetual injury to a reputation. Consider such consequences. Every physician has his own characteristics and his own methods. Do not judge lightly. Respect the older physician and endear the younger to you. Stress their better side and refuse to comment on their treatment since you have not seen the patient.

"XI. A consultation should not include many—three at most. Select the right men. In conference, consider only the safety of the sick man and argue nothing else.

"XII. A patient may leave his physician to consult you. Do not be deceived. Hear the former physician's side. But where convinced that the treatment has been in error, it is against the code to be indifferent. Especially when critical, act, and with vigor.

"These twelve mandates have I written and showed to a few, but mainly did I write them for my own guidance."

The first three precepts are expressed in the interest of the patient, but on the whole the code is a set of rules benefiting the physician. It is objective in purpose, with a strong materialistic appeal. The physician is to "learn how to win the confidence" of man "through word and action," and by "discretion in word and manner," not to let the patient "guess the real situation" in regard to the severity of his illness. "The physician must win the good will of the public." He should refuse to comment on the treatment of patients by other physicians since he, himself, has not been in attendance. Suppose he had seen the patient, would his comment then be ethical? Such a code of conduct may help one physician and be a detriment to another, although some of the concepts are worthy of all.

It is appropriate at this place to mention other medical codes. Probably the earliest form proceeds from the laws of Hammurabi, king of Babylon, *circa* 2200 B. C. These laws dealt with the regulation of medical fees and conduct, emphasizing protection of the patient from death at the hands of the physician. Protection manifested itself in punishment enacted against the physician should his treatment result in injury or death. The next outstanding document, the Hindu Menu Code, *circa* 1500 B. C., specified the qualifications of physicians and demanded a high standard of character. Likewise, the materialistic was stressed. The *Corpus Hippocratica* (aside from the *Oath* which implied the highest ethical standards) provided through *Law*, *Precepts* and the *Decorum*, material principles concerning professional conduct and the regulation of the physician's life in all its aspects toward society. Percival's "Medical Ethics; or, a Code of Institutes and Precepts, adapted to the Professional Conduct of Physicians and Surgeons" (1803) defined and regulated every possible relation of the physician to his environment and society. This document formed the basis of the first "Code of Ethics of the American Medical Association" (1847).

THE OATH, AN ETHICAL DOCUMENT

Hippocrates, whose oath is probably the finest document of its kind in existence, was born on the island of Cos 460 B. C. and died 370 B. C. He introduced clinical records such as are in use today, recognized disease as a natural phenomenon, and imbued Greek medicine with scientific spirit and ethical ideals. The Adams [2] translation of the Oath follows:

THE OATH

"I swear by Apollo the physician, and Aesculapius, and Health, and All-Heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to anyone if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my Art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connexion with my professional practice, or not in connexion with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unvio-

lated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!"

He who takes the Oath swears "that he will uphold its principles" according to his "ability and judgment." The elasticity of the latter phrase makes the consenter answerable only to himself, not society. "According to my ability and judgment" appears again when the subject of regimen in its relation to the benefit of the patient is discussed. Here cognizance is taken of the fact that the practice of medicine is ever changing and the horizons of learning ever widening.

The affirmant is bound to certain moral rules of practice in relation to master and colleague. He consents to teach the art to his own sons and those of his master on equal footing and *"without fee or stipulation* . . . and to disciples *bound by a stipulation and oath* according to the law of medicine, but to none others." If one may substitute contract, agreement, or covenant for *stipulation* the flexibility of the Oath as a personal responsibility is evident. That this inference may justly be drawn is evident from the fact that many of the oaths contain elaborately couched phrases regarding tutorial stipends.

He who takes the Oath is to so regulate his conduct that there will be a uniform moral standard for both his nonprofessional and professional life. He must hold the confidence of others inviolate. Only then is he fit to minister to the needs of man.

The Hippocratic physicians sensed the need for a system of medical ethics. The Oath had its inception in written bonds between student and teacher. Not all these bonds were uniform, since they were composed to fit the particular situation at hand. Certain clauses were subscribed to by all, others were altered as the need arose, but no one practiced medicine without recognizing the fundamental principles underlying all versions. Each student admitted the moral obligations of his particular scroll before the master accepted him. Finally a form was adopted which we know as the present Oath. It was a set of moral principles composed by the guild master and sworn to in the name of Apollo. Violation was punishable by ostracism from the group. In this sense it was professional ethics and not spiritual appeal.

With the rise of Christianity the high moral aspects of the Hippocratic Oath, although a pagan document, were recognized and subscribed to by Christian physicians. A so-called Christianized Hippocratic Oath evolved which differed somewhat from its pagan prototype. For instance, that paragraph concerning the teaching of the art, in which elaborate expressions concerning tuition were incorporated, was greatly altered. The art was taught to all who so wished to learn it, "without grudging and without an indenture." The troublesome phrase concerning surgery upon "persons laboring under the stone" was omitted. The W. H. S. Jones [3] translation of the Christian form of the Hippocratic Oath follows:

FROM THE OATH ACCORDING TO HIPPOCRATES INSOFAR AS A CHRISTIAN MAY SWEAR IT

"Blessed be God the Father of our Lord Jesus Christ, who is blessed for ever and ever; I lie not. "I will bring no stain upon the learning of the medical art. Neither will I give poison to anybody though asked to do so, nor will I suggest such a plan. Similarly I will not give treatment to women to cause abortion, treatment neither from above nor from below. But I will teach this art, to those who require to learn it, without grudging and without an indenture. I will use treatment to help the sick according to my ability and judgment. And in purity and in holiness I will guard my art. Into whatsoever houses I enter, I will do so to help the sick, keeping myself free from all wrong-doing, intentional or unintentional, tending to death or to injury, and from fornication with bond or free, man or woman. Whatsoever in the course of practice I see or hear (or outside my practice in social intercourse) that ought not to be published abroad, I will not divulge, but consider such things to be holy secrets. Now if I keep this oath and break it not, may God be my helper in my life and art, and may I be honored among all men for all time. If I keep my faith, well; but if I forswear myself may the opposite befall me."

We learn from both forms of the Hippocratic Oath that the art of medicine and the highest morality are inseparable.

THE INVOCATION, A SPIRITUAL PLEA

The Oath and Prayer of Maimonides [4] is in reality an invocation. One finds many allusions to Maimonides, but few mention the famous invocation, rarely is it seen in print.

Rabbi Moses ben Maimon, or Maimonides, the last of the great Arabian physicians, was born at Cordova, Spain, in 1135. He was primarily a student of philosophy and theology. Rather than profess a new faith he left Spain for Morocco; persecution forced him on to Cairo, where he settled and became famous as a physician. He was summoned to the court of Saladin, where he was appointed court physician. While in this position he was made supervisor of the compounding of theriaca and mithridatum for the community, a much coveted office. Maimonides declined the offer to become personal physician to Richard the Lion-Hearted. He is best known by his scholarly philosophical writings and comments, among which is found the idealistic medical invocation. Maimonides has been considered the greatest Jew since Moses, and his conception of the duties of a physician are, at least, worthy of ranking with Hippocrates'. It has been stated that the aphorisms of Maimonides were borrowed partly from Hippocrates and partly from Galen. Although Maimonides was thoroughly conversant with Hippocrates and Galen it seems unfair to consider his works as plagiarisms. That he was influenced by the Talmud, upon which he wrote authoritative comments, cannot be denied. Maimonides died in 1204.

THE INVOCATION OF MAIMONIDES

"Thy Eternal Providence has appointed me to watch over the life and health of Thy creatures. May the love for my art actuate me at all times; may

neither avarice, nor miserliness, nor the thirst for glory, nor for a great reputation engage my mind; for the enemies of Truth and Philanthropy could easily deceive me and make me forgetful of my lofty aim of doing good to Thy children.

"May I never see in the patient anything but a fellow creature in pain.

"Grant me strength, time, and opportunity always to correct what I have acquired, always to extend its domain; for knowledge is immense and the spirit of man can extend infinitely to enrich itself daily with new requirements. Today he can discover his errors of yesterday, and tomorrow he may obtain a new light on what he thinks himself sure of today.

"O God, Thou hast appointed me to watch over the life and death of Thy creatures; here I am ready for my vocation.

"And now I turn unto my calling:
O stand by me, my God, in this truly important task;
Grant me success! For—
Without Thy loving counsel and support,
Man can avail but naught.
Inspire me with true love for this my art
And for Thy creatures,
O, grant
That neither greed for gain, nor thirst for fame, nor vain ambition,
May interfere with my activity.
For these I know are enemies of Truth and Love of men,
And might beguile one in profession
From furthering the welfare of Thy creatures.
O strengthen me.
Grant energy unto both body and the soul
That I might e'er unhindered ready be
To mitigate the woes,
Sustain and help
The rich and poor, the good and bad, enemy and friend.
O let me e'er behold in the afflicted and suffering,
Only the human being."

Only a profound believer in a system of order in nature, one who sees man in relation to the cosmos, could have written such an appeal. His interest was not only in terms of the present, but also in a desire for future progress by means of which all mankind could profit. Maimonides prayed to his God, as we should appeal to the best that is within us. His prayer is not a manifestation of egotism (as some would have it) since it is but an attempt to hold oneself in close comradeship with a Superior Intelligence in order to have a better understanding of the nature of things. Perfection comes to him who is not satisfied with the present, but who by tolerance and perseverance fulfills his desire to approach the ideal of his profession. There is no mention of what one should not do. All that is aspired is positive. The material and ethical are taken for granted since only he who has perfection in these attempts the spiritual.

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CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

PERFORATION OF THE PLEURA BY AN INSPIRED FOREIGN BODY

REPORT OF CASE

By HARRINGTON B. GRAHAM, M. D.
San Francisco

AS the mother of an eight-months-old child was walking through a forest, the child secured a branch of cedar and placing it in her mouth swallowed it. The mother made an unsuccessful attempt to rescue the branch, but as the child seemed normal after the first five minutes, she supposed that the cedar branch had passed into the stomach. For two and a half days the child played about without a cough or disturbance of breathing, and then suddenly began to take short breaths and show evidences of distress. An x-ray was taken of the chest, which showed a total collapse of the left lung, without any evidence of a foreign body. The child was then brought to me, arriving on the fourth day succeeding the accident. Another x-ray showed an extension of the collapse, the contents of the left chest being shoved well over to the median line, but again no foreign body was evident. Bronchoscopy on the fifth day showed no foreign body; the bronchioles were narrow, inflamed, and contained no abnormal secretions.

The physical signs at this time were those of a pneumothorax with a secretion in the pleural cavity. On the seventh day a straw-colored fluid was aspirated from the upper chest. The breathing was labored and the child was blue. Death occurred on the eighth day.

Autopsy revealed a totally collapsed lung; the heart was displaced to the right; the pleura and mediastinum were filled with fluid, and there was a perforation in the pleura of the lower lobe on a level with the fifth rib, in the midaxillary line. Near the perforation was a branch of green cedar, which had evidently passed through the bronchus, and then through the lung.

Complete perforation had evidently taken place two and a half days after the branch had been taken into

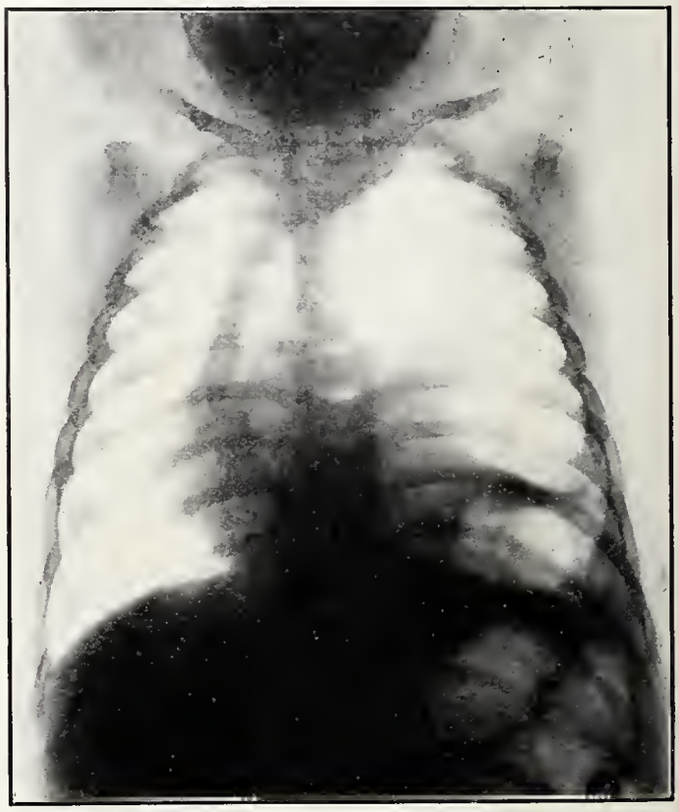


Fig. 1.—X-ray of chest showing collapsed lung and contents of chest pushed to the right.

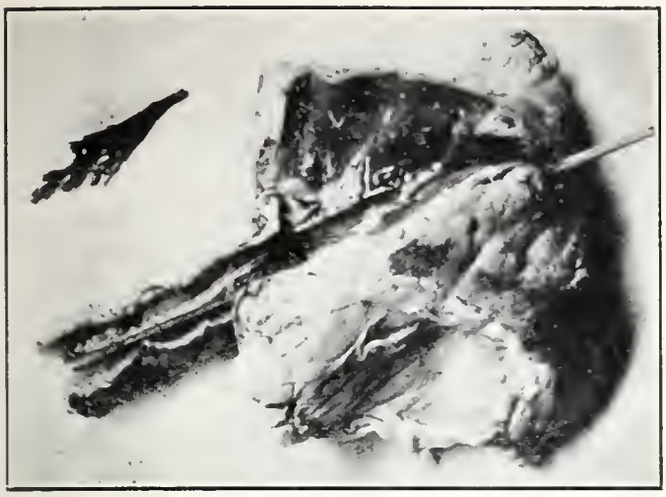


Fig. 2.—Cedar branch showing spicules. Tract followed through lung.

the mouth, the rapidity of the process having been dependent on the peculiarly barbed structure of the cedar. Every motion of the lung would tend to send the branch forward, and at no time could it remain at rest. It is well recognized that the bronchi are peculiarly tolerant of foreign bodies, but one could hardly expect that such a large object could possibly pass through the larynx without causing more disturbance than was the case here.

The initial appearance of such a foreign body in the trachea should cause an explosive cough, but in this case that was not so, the child making only a few efforts as though she was swallowing with difficulty. It was not until the perforation of the pleura, that the mother noticed anything in the child to warrant an investigation, and the parents were intelligent people, who took immediate action as soon as difficulty in breathing occurred.

Diagnosis here was hampered by the lack of knowledge of the actual condition of the chest before the accident, and a resection of the rib was thought inadvisable by the consulting surgeon on account of the bad condition of the child.

To my knowledge this is the only case in the literature of so rapid perforation of the pleura from an inspired foreign body. Doctor Carmody of Denver related in a personal communication, however, the case of a foreign body that probably had been pushed through the pleura while making an attempt at bronchoscopic extraction, and which was rescued by an immediate rib resection, with a happy result.

490 Post Street.

BLADDER PRESSURE AND VOLUME DETERMINATIONS*

AS AIDS IN DIAGNOSIS—WITH DESCRIPTION OF A NEW RECORDING INSTRUMENT

By F. H. Redewill, M. D.
San Francisco

UROLOGISTS[1] in Paris, during the past year, have been using barium solutions in bladder for fluoroscope study in a manner similar to that used by the enterologists in gastro-intestinal examinations. Remarkably clear visual pictures are thus obtainable. Such studies aid in the diagnosis of conditions as: tumors of the bladder, ulcers, trabeculation, cellules, diverticula, both fixed and contractile, malformations, reflux into ureters, filling and emptying time.

The use of the barium solution with the fluoroscope is a harmless new aid in studying the physiology of normal and pathologic bladder conditions. In using the term "new aid," is meant the combination of the two, barium and the fluoroscope. The barium is by far the most preferred of the opaque solutions because, unlike the effect of the iodids, bromids and strong nucleates of silver, it is not irritating to the mucosa and can be easily washed out of the bladder, following the tests.

But with the fluoroscopic test, as far as the physiology of filling and emptying the bladder is concerned, nothing can be told by this method regarding the volume of the solution used nor the pressure attained in filling the bladder or during micturition.

With the use of a suitable instrument for recording both volume and pressure the following points can be determined: one, the point at which desire to void is first noted; two, the capacity of the bladder with intracystic pressure becoming severely painful; three, the emptying pressure; four, the promptness of emptying, thus determining tonicity of bladder wall; five, the determination of the various types of urogenic bladders, which conditions will be discussed later, and among which may be noted, injury and blocking, (*a*) of the sympathetics, (*b*) of the parasympathetics, and (*c*) of the pudic nerves.

Rose[2] two years ago described a large intricate apparatus for taking the measurements of the bladder (just mentioned), and last year[3] went into some detail in discussing the diagnosis of urogenic lesions with the same apparatus. His instrument necessitated the use of a large copper pail that was placed about on the level with the patient, and required the use of a two-way valve, 15 cc. syringe, to be pumped by the hand or foot, in order to fill the bladder. The recording was done on a large revolving drum. The whole instrument was bulky, and cumbersome to transport.

APPARATUS DEVISED BY AUTHOR

The writer has devised an apparatus that is light and portable, that can be placed on the cystoscopic table, and can be easily connected to a catheter or cystoscope. The pressure of the solution is obtained by the usual gravity method. The amount of solution used is indicated on the chart by means of an electrically connected float that transcribes by means of an electric manometer. The pressure is transmitted by means of an air chamber to a highly elastic tambour that also transcribes by means of a marker on the moving chart. The chart or tape can be as long as desired, and revolves, or rather unwinds, on a banometer, which instrument also runs a timer. So the moving tape has written on it three curves: one, the time in seconds; second, the volume in cubic centimeters; and third, the pressure curve, which ranges from 0 to 80 mm. of mercury.

Bringing the time element to play in the pressure and volume readings is another important improvement over the Rose machine, in that the time required for filling and emptying are important aids in diagnosing pathological conditions. As an illustration: In mild subacute cystitis with the sympathetic nerve terminals in a state of irritation, one will find that the bladder will not hold

* Read before the Urology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

one-half the amount of solution, that is, the voiding pressure will be made manifest before the bladder is half full if the first 100 cc. is run into the bladder in thirty seconds, than if one takes four times the time to run in the first 100 cc. of solution, namely, in two minutes' time.

Now with the gravity method of our instrument, the pressure and flow is uniform in a given case, but with the Rose cystometer using a hand pump, the human element is a big factor, and the flow of solution is not constant at any time. Thus charting the time in each instrument is necessary so that the flow of the solution in cubic centimeters per second may be known.

ADVANTAGES OF THE APPARATUS

To summarize the valuable points of the machine:

1. The working parts are indestructible.
2. The whole machine is light and portable.
3. The record is taken on a standard cash register machine blank paper. Tape and ink are used in the three pens, thus rendering the record permanent and not mussy and cumbersome like the use of smoked paper on a large revolving drum.
4. Three records are recorded simultaneously: (*a*) the amount of solutions entering the bladder; (*b*) the pressure developed in the bladder at all times, namely, filling and voiding; (*c*) the time consumed for these operations.
5. The irrigating vessel made of German silver, the glass air-pressure chamber and tubing can all easily be sterilized by the same methods that any irrigating apparatus is sterilized. The machine then can be connected up directly with catheter or with cystoscope.
6. If fluoroscopic study is to be made, a barium solution can be used in the apparatus, which is connected up directly with a catheter to the patient. Instead of as with a clear solution, the fluoroscopic readings are not only made with the eye, but also simultaneously with the machine.

POINTS IN TECHNIQUE

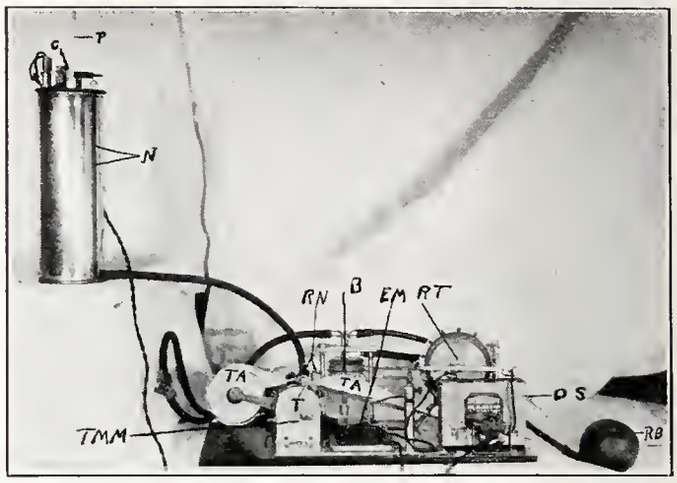
Some of the points to be noted on operating the machine are:

1. The gradual filling pressure.
2. Point at which the bladder is filled to capacity, indicated by painful tenesmus sensation.
3. Emptying pressure.
4. Time of emptying, as an aid in determining in unobstructed bladder the tonicity of bladder wall.
5. Corrections for leakage around catheter and intra-abdominal pressure, due to contraction of abdominal muscles.

INDICATIONS FOR USE

The types of cases in which this instrument is decidedly useful as a new aid in diagnosis are:

1. To determine at once if bladder is normal regarding (*a*) its capacity, (*b*) the condition of muscular wall, (*c*) the condition of nerve innervation, (*d*) the condition of bladder surface, (*e*) the presence of obstructions. A study of any catheterized bladder with the use of the cystometer and fluoroscope will promptly determine whether a normal condition obtains.



Redewill—Urinary Bladder Automatic Pressure, Volume, and Time-Recording Machine.—N, nickel 1000 cc. irrigating vessel; C, commutator with make-and-break device that makes and breaks the circuit as toothed plunger P (which is attached to float in N) is lowered when solution runs out of N into bladder (RB, rubber bulb, takes the place of human bladder in picture); EM, electromagnet, acted on by make-break current, moves one of recording needles, RN; B, air-pressure bottle that transmits by air any variance in pressure to recording tambour, RT (this tambour is directly connected to one of the recording needles, RN); T, time clock, also connected to recording needle. Recording needles, RN and T, record on moving tape, TA, any variances in pressure and volume as well as time. TMM, tape-moving mechanism; DS, dry cell.

2. To determine the type and degree of obstruction.
3. Type, size, and whether contractable or rigid diverticula.
4. To determine actual benefits incurred, by comparing cystometric records before and after operations on the bladder and prostate.
5. On emptying a bladder with considerable residual, to record the gradual outflow and pressure retained on cystometric chart.
6. To determine the type of neurogenic bladder which, under the Head [4] classification, would be (*a*) involvement of the sympathetras, (*b*) parasympathetras, and (*c*) dorsal roots.

NEUROGENIC BLADDERS

The most important nervous disease affecting the bladder is tabes dorsalis or locomotor ataxia. Very often the initial symptoms of tabes are the bladder symptoms. The first portion of the urinary apparatus affected in this disease is the detrusor muscle, and both sensory and motor paths are usually involved. Any combination of symptom complex may be expected in tabes, such as, one, spastic condition of the sphincters with loss of tone of muscular wall, causing retention; two, loss of tone of muscle wall with only slight temporary spastic condition of the sphincter which results in overflow incontinence, and three, complete sphincter paralysis with true incontinence.

Since in 80 per cent of these tabetic cases bladder symptoms are present, and this condition may even exist in young children with inherited syphilis, it can be readily seen why a bladder examination, with the new cystometer apparatus, will very often lead to the first absolute diagnosis of tabetic bladder. In these cases the capacity is

greatly increased and the voiding pressure considerably lowered.

In obstructions of the vesicle neck the opposite picture is the rule, namely, small capacity and high voiding pressure.

Other nervous diseases in which the bladder with its innervation may be involved are, besides cerebrospinal syphilis, transverse myelitis, toxic sclerosis in pernicious anemia, diabetes, spina bifida, multiple sclerosis, and ataxia paraplegia. In any of these conditions the cystometer is a valuable adjunct in aiding diagnosis.

ACTION OF VARIOUS NERVES

Hypogastric nerves: when these nerves are sectioned no important change is seen in function or sensation of the bladder. This nerve does not contract the muscles of micturition.

Pudic nerves: section of this nerve causes tendency to incontinence and dribbling.

Nervi ergentes (pelvic nerves): when this nerve is sectioned the bladder dilates although it retains some slight tone, and loses its sensation. If the spinal cord is cut in the lumbar region the bladder cannot empty itself.

Regarding the physiological action of the internal urethral sphincter, many of the older observations have been upset by the findings of Young.[5]

Ranson,[6] Barrington[7] and others believe micturition occurs by an inhibitory impulse through the parasympathetics or the internal sphincter muscle, thus producing a relaxation. Young has shown that instead of an inhibition there is a direct stimulation of the trigone muscle where it extends through the internal sphincter, thus pulling open that sphincter. This is important, for in cases of hypertrophy of the trigone or glands of Albarans, there is marked difficulty in voiding, due to interference with the natural action of the trigone muscle in opening the internal sphincter.

SUMMARY

1. Barium solutions can be used as irrigating media to study pathologic bladder conditions with the fluoroscope.

2. With the new portable cystometer devised by the writer, a new instrument is presented that will aid materially in studies of the bladder and its action in relation to the cystoscope and fluoroscope.

3. With this new cystometer, the time element as well as volume and intravesical pressure are simultaneously recorded, with ink on tape that remains as a clean, inexpensive, permanent record.

4. Neurogenic conditions of the urinary bladder, as well as tumors, diverticuli and obstructions of the vesical neck, are more easily and quickly diagnosed, in children as well as in adults, by utilizing, along with other measures, the new cystometer.

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FOREIGN BODY IN CHEEK—AN UNUSUAL CASE

By Frederick S. Balyeat, M. D.
Los Angeles

FOREIGN bodies in the cheek are usually from an external source. Among the common examples are bullets, steel particles, pieces of clothing, wood, glass, and other substances. In this case there was an external purulent draining sinus on the face for one year, and it was finally shown to be due to a foreign body of an unusual source.

CASE REPORT

A young Mexican adult, male, went to a dentist one year ago to have a right lower third molar (wisdom tooth) extracted. The dentist supposedly removed the tooth, using novocain as the anesthetic. Several weeks after the extraction the right side of his face became very swollen. About one week later it ruptured spontaneously externally about opposite the second lower molar. This sinus persistently discharged pus for several months. The patient then went to a hospital and had the third molar socket curetted, and also the external sinus. However, the sinus persisted. X-rays made at this time were reported negative for osteomyelitis or any foreign body.

About three months ago he presented himself to the oral surgery clinic of the Los Angeles General Hospital for treatment. Examination revealed the fact that the patient could not open his mouth more than one-half inch. The lower right second and third molars were absent, with the sockets apparently healed. Externally there was an opening about one-half centimeter in diameter in the lower part of the right face about opposite the right lower second molar which was discharging pus. On probing, this led to the mandible. Intra-oral dental films and the first series of extra-oral plates were negative for any bone pathology, thus ruling out osteomyelitis. We then had repeated Wassermanns taken, which were all negative. Complete blood count was normal. Urinalysis was negative. Smears of the pus for fungi were negative. The smears showed the usual bacteria and débris. We then requested another series of x-ray pictures higher on the ramus. These revealed a misplaced molar which was near the coronoid process, lying over the anterior border of the ramus in the soft tissues. There was some discussion from the lateral views as to whether this tooth was a supernumerary upper molar, the three upper molars being erupted.

On July 5, in the surgery, under ether, we opened the tissues over the anterior border of the ramus of the mandible, and after some exploring the tooth was felt and removed. It consisted of a typical lower molar which showed extensive necrosis on one of the lateral sides of the roots. The mouth wound healed without any complications and several weeks later the sinus had ceased to discharge and was closed.

It is my belief that this was a misplaced tooth rather than a supernumerary molar, and was acting as an infected foreign body.

1136 West Sixth Street.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

MENINGITIS

Frederick Eberson, San Francisco.—Between 1904 and 1910 a pandemic of epidemic meningitis spread over the world, and since then the disease has appeared in different localities. There has resulted from a series of early outbreaks a number of foci from which the disease takes origin at different times. Epidemic meningitis, cerebral spinal fever, or spotted fever, as it is sometimes called, is an old foe. The disease has prevailed in epidemic form, or sporadically, in this country since 1904 and 1905.

In the *Medical and Agricultural Register,* published in Boston in 1806, is found the account of: "A singular and very mortal disease, which lately made its appearance in Medfield. The symptoms of the disorder, its progress and termination, appearances on dissection and the different methods of treatment are communicated by Doctors L. Danielson and E. Mann, attendant physicians on the sick." Further, we may learn from Elisha North in his classic treatise on a malignant epidemic commonly called "spotted fever" (published in 1811) all that was observed and known about epidemic meningitis at the time. It would appear from these early works that nothing has been added to our clinical knowledge since then, although we must differ with these gentlemen who thought that the disease was not contagious.

We may safely agree with Flexner that the survival of the disease is attributable rather to chronic carriers of the meningococcus than to active carriers of epidemic meningitis. It is these undoubted innocent carriers who become malevolent agents that carry and propagate the infection.

Control of epidemic meningitis posits a study of the mode of infection, detection of carriers and effective serum treatment. There are few diseases so strictly subject to bacteriological control and perhaps none so beautifully responsive to serum therapy. To Flexner in the United States in 1907 and simultaneously in Germany to Kolle and Wassermann and to Jochmann we owe the production of an antiserum. In America Flexner and Jobling during the years 1907-1909, and their coworkers some time later, developed the serum therapy to a high degree and widened its field of application.

Too great stress cannot be laid upon the importance of an early bacteriological diagnosis, the proper serological typing of the organism, and the use of a potent polyvalent serum in which are represented as many different strains of meningococci as it is possible to obtain. Not infrequently serum therapy may fail, owing to the poor quality of the serum, which may lack potency as measured by agglutination-titer, and also be deficient in the number of representative meningococcal strains. It should be the duty of the physician to check a therapeutic failure of a given serum with the type of organism isolated from the nasopharynx, cerebrospinal fluid, or from the blood stream. Rarely a strain thus isolated has not been incorporated in a commercially prepared therapeutic serum. For the technique of standardization and criteria of a satisfactory serum, one may with benefit refer to the publications of Jobling and of Amoss and coworkers.

Flexner's serum is eloquent testimony of the value of serum therapy in epidemic meningitis. In pre-serum days the mortality from the disease throughout the world ranged between 75 and 80 per cent. Following the use of serum the mortality has averaged 15 to 20 per cent, a distinct therapeutic triumph. Dreaded sequelae and relapses have also been reduced to a minimum. Such results are contingent, however, upon the interval between diagnosis and treatment. Experience has shown that the mortality will increase if serum is administered after the third day of the disease. The number of fatalities may rise to 27 or to 36 per cent, if treatment is delayed till the fourth day, or later. The results of serum treatment in 1300 cases of epidemic meningitis were published by Flexner in 1913, in the *Journal of Experimental Medicine.* Since then experience in the Great War has added more data to show that no disease responds so brilliantly to the administration of serum as does epidemic meningitis.

The serum acts locally upon the microörganism and upon the exudate to arrest the infection and to promote restoration of damaged membranes. The different modes of injection, the advantages of each, and the underlying mechanisms will doubtless be discussed by others. It suffices that the ultimate criterion of the efficacy of a serum is its ability to stop the progress of the disease. The clinical result is the test, but this cannot be made without competent and expert bacteriological study early in the infection.

* * *

Samuel D. Ingham, Los Angeles.—The subject of meningitis includes a multitude of conditions, depending upon a variety of etiologic factors and manifesting the widest variations in the clinical picture. Most of the well-known pathologic microörganisms may become localized in meninges and so cause meningitis, predominant among which are the tubercle bacillus, pneumococcus, and different strains of streptococcus and staphylococcus. Invasion of the meninges by the *Treponema pallidum* is probably among the most

frequent, but it is comparatively seldom that it manifests itself in frank symptoms of meningitis. Intracellular coccus of epidemic meningitis is relatively rare, except in epidemics. The diplococcus of Neisser is an occasional visitor, and even some of the fungi are occasionally found.

The certain diagnosis in each case is dependent upon the bacteriological study of the cerebral spinal fluid removed by lumbar puncture, which fact in itself establishes the value of this important procedure. In addition to the type of meningitis caused by a definite bacteriologic invasion, the clinical picture of meningitis frequently manifests itself when the most careful examination of the cerebral spinal fluid fails to reveal the presence of any bacteria. This is true in regard to the clinical signs of meningitis which are frequently a part of the clinical picture of acute anterior poliomyelitis. This is particularly true in those forms of so-called serous meningitis, or meningismus, which manifest acute symptoms for a time, and follow a benign course. The symptoms of this group of cases are dependent upon irritative processes in the meningeal system, and are evidently caused by toxins, by meningeal invasion of germs which do not get into the spinal fluid, or by ultramicroscopic organisms.

That symptoms of meningitis may result from nonbacterial agents has been repeatedly demonstrated by attempts at intraspinal medication. Even the intraspinal injection of serum, as in the treatment of tetanus, results in not only symptoms of meningeal irritation, but also a definite pleocytosis.

Symptoms of meningitis also occur in connection with typhoid fever, influenza, pneumonia, etc., as a symptom of meningeal congestion and irritation as part of a general process, rather than a localized pathologic condition.

The clinical diagnosis is usually easy on the basis of a few classic signs and symptoms; nuchal rigidity, opisthotonos, Kernig's sign, Brudzinski's sign, photophobia, general irritability. While these symptoms are referred to as due to meningeal irritation, they are, without exception, due to irritation of the nerve tissues in proximity to the meninges, resulting in muscular contractions, heightened reflexes, and generally increased nervous irritability.

With the exception of immunized serum for epidemic meningitis, there is no specific treatment available. Frequent lumbar puncture for the removal of the excess of spinal fluid usually present is widely favored, and is particularly beneficial in so-called meningismus. In purulent meningitis resulting from the staphylococcus it is sometimes necessary to use a large spinal needle and to employ aspiration in order to remove the thick, creamy pus from the spinal canal. Irrigation of the meningeal sac by combined cisterna and lumbar puncture, facilitating through-and-through drainage, has been successfully used in some cases. The general management, nursing, and feeding of the patient is, as in other diseases, often the most important part of the treatment.

* * *

William W. Belford, San Diego.—Meningococcus meningitis is most common in childhood; about 80 per cent of all cases occur within the first ten years. It is not a rare finding in the first three months of life. The diagnosis is not always simple in children; in fact, the lumbar puncture findings alone may furnish the only evidence of meningeal involvement. The disease has been notorious through the years for its varying clinical pictures. A terrible fulminating form occurs in about 5 per cent of all cases of this type of meningitis, and it is so often not recognized until a postmortem is done. The most dependable sign is muscular rigidity, but only some 75 per cent show this. If one just remembers the possibility of meningococcic meningitis and does a lumbar puncture early, many more obscure cases will come to diagnosis and helpful treatment.

Treatment in this form of the meningitis must be vigorous and continued until the organisms are killed off. Serum is given by all avenues—intravenous, intraspinal, by cistern puncture, and through fontanelle into ventricles if needed. In some cases treatment is easy and in others difficult, depending on severity of disease, duration when treatment was begun, potency of serum, reaction of patient, etc.

W. H. Eustis.—The life of W. H. Eustis demands the attention of the medical profession. The generosity of the former mayor of Minneapolis laid the foundation for medical activities which in the years to come will do an immeasurable amount of good to a multitude of crippled children throughout the state. A cripple himself, he realized better than anyone not so afflicted the handicap a crippled child has in the struggle of modern-day life. The wealth that he accumulated as a result of keen business judgment has been given in toto to furnish medical and surgical aid to crippled children. The term "cripple" is used in a broad sense to cover not only those children crippled through bone and joint disease, but those handicapped in any way through accident or disease.

More than five years ago a tract of land on the bank of the Mississippi River was given to the state as a site for a convalescent home for needy crippled children, and the adjoining property where the Michael Dowling school now stands was also donated. Mr. Eustis' entire fortune of a million and a half has been bequeathed to build and endow the hospital, which will be known as the Minnesota Hospital and Home for Crippled Children. Mr. Eustis was born in the village of Oxboro, New York, July 17, 1845, of English parentage. He died in Minneapolis, November 29, 1928, at the age of eighty-three. Robust as a child, a crippling accident at the age of fifteen forced a complete change in his life. The difficulty he encountered in obtaining proper medical advice and the obstacles met in obtaining an education resulted in his decision to devote his wealth to assist others similarly handicapped.

His generosity is an inspiration in an age when wealth is so commonly thought to be an end in itself. How much better to be remembered by posterity in this manner than, for instance, by a building towering above all others, desirable as a skyscraper may be.—*Minnesota Medicine.*

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EDITORIALS

THE CALIFORNIA LEGISLATURE IS IN SESSION

Usual Flood of Proposed New Laws Appears. The first portion of the forty-eighth session of the California legislature came to an end on the eighteenth day of January. The legislature now takes a thirty-day recess. Some 1859 new bills were introduced in the two brief weeks of the preliminary session. Of these a goodly number directly or indirectly concern public health matters in which organized medicine should be interested.

* * *

Public Health Interests Should Be Alert.—The appearance of these many public health measures on the docket files of the legislature indicates that they are sponsored by persons or interests whom it may be assumed believe, whether rightly or wrongly, that such additional legislative enactments will enhance or bring benefits to either themselves or the people at large. But no matter what may have been the motives which led to the introduction of these bills, it is the moral obligation of the medical profession to study all such proposed public health legislation, so that undesirable measures may be either modified or eliminated.

The general officers and legislative committees of the state association and its component county societies have a special responsibility and should be alert to all such proposed legislation, in order that the best interests of the citizens of the state and of the medical profession may be properly safeguarded.

* * *

The Vocational Standards Bill.—This measure was discussed in the January issue of California and Western Medicine (pages 50 and 65) and was taken up in further detail at the meeting of the Council of the California Medical Association, held in San Francisco on January 12. Efforts are being made to make the provisions affecting the professions of medicine, dentistry, and pharmacy as acceptable as possible. For instance, the full text of the bill, a digest of which was printed in the December issue of California and Western Medicine (page 414) has been modified so that the three professions are now grouped in Division 1 of the proposed department, with supervisorial conditions which are different from those which will apply to vocations and trades.

* * *

How the Legislative Session Is Divided.—Practically all new bills must be filed by assemblymen and senators during the January meetings. Then follows a recess of one month, the legislature again convening to continue in session until adjournment. This will make somewhat possible during February a study of all new legislation. A summary may be printed in the March issue of California and Western Medicine.

During the recess period the officers and members of component county societies should see to it that proper contacts are made with their local senators and assemblymen, in order to assure better coöperative effort and support should occasion later on require. Every component county society should either have a separate legislative committee, or the officers as an executive committee should act in such capacity.

The chairman of the Legislative Committee of the California Medical Association is Dr. Harlan Shoemaker. Information on medical matters deemed of interest to the State Committee should be sent to him. Doctor Shoemaker's address is 1014 Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles.

* * *

Laws Relating to the Board of Medical Examiners.—The Vocational Standards statute could seriously influence the activities of the California Board of Medical Examiners, as was pointed out in the January issue of California and Western Medicine. In addition to that measure, which was submitted by the Governor's office, a number of other bills have been introduced. These medical board bills would bring into being, if possible, amendments which would cover some of the items discussed at a recent conference of board members and medical school representatives, and which were listed in the November, 1928 issue of California and Western Medicine (page 344). The provision for a fifth year of work, applicable to graduates after July 1, 1929, is covered in Senate Bill 214 (lines 21-28 of first page of the bill). This and other proposed

amendments will be carefully studied by the officers of the Board of Examiners and by the Legislative Committee of the California Medical Association. Among such proposed amendments are those listed in Senate Bills 106, 213, 216, 215, and 217. Requests made to the Legislative Bill Room, California State Bureau of Printing, Sacramento, will bring copies of such proposed legislation to the county society committees who write for the same.

Many other measures involving public health interests were introduced at the legislative session just closed, and many additional public health amendments may be expected to appear in the concluding session. The full coöperation of all members of the California Medical Association is needed to safeguard the interests of the people and of the profession.

INFLUENZA AND PUBLICITY—COMMENTS ON TREATMENT

The Recent Epidemic of Influenza.—Influenza, starting on the Pacific Slope, has swept its way eastward to the Atlantic; the present epidemic, however, fortunately being of a milder type than the visitation of 1918. When it made its appearance on this western coast, a considerable number of Middle West and Eastern newspapers played up its ravages to their local readers, giving direct or implied suggestions that it might be well for easterners to stay at home rather than go to California for the winter.

Before the epidemic had reached the Mississippi, however, Pacific Slope papers in turn were making mention of a "medical board of strategy" which had been appointed by the Surgeon-General of the United States Public Health Service, the board to keep a close watch and make a careful study of the disease types in the prevalent epidemic, and to suggest ways and means whereby its ravages to human health and life might be kept down to a minimum.

* * *

Commercial Bodies and Vital Statistics Publicity.—An interesting sidelight which came under observation in one of the large California cities was the action of one or more large commercial organizations in sending communications to their local board of health deprecating the publication by the health commissioner of figures or information which would call attention to the local prevalence of the disease or of its nature and best method of handling. The commercial organization communications were evidently well meant and very possibly may have been based on the desire of the commercial bodies not to have local business or prospective tourist travel interfered with.

Such communications are not commendable, however. In disease epidemics such as influenza or smallpox it is important and essential that the citizens of a community should know to what extent the diseases are prevailing. Citizens may justly expect to be informed by local health officers concerning the virulence or special dangers associated with an epidemic. Then those who desire to exercise suitable precautions would be in a position to do so. Without such knowledge the health and even the lives of a certain number of citizens might be unnecessarily sacrificed; and those who were parties in the concealment of the proper public health information would then have an indirect relationship to such loss of health and life. In view of the commercial organization efforts referred to, to minimize or conceal the incidence and other factors of the disease in certain districts of California, it is the more interesting to note how the Associated Press from day to day later gave the number of cases in other states as the disease made its way from one seaboard to the other.

In our enlightened age, in which man has weapons with which to give battle to epidemic scourges, it is not an expression of superintelligence to imagine that things which most people know do exist more or less, do not seemingly exist at all. Such practice savors too much of the ostrich sticking its head in the sand when danger threatens, or of an age prior to that of modern scientific medicine, when lack of knowledge of causative disease factors laid the foundation for superstition, fear and blind groping and action. Health boards and officers should so sense their obligations in matters of such nature as to refuse to become parties to the suppression of vital statistics on morbidity or mortality. There are many unsolved problems in medicine, but ignorance and suppression of the truth will aid neither science, mankind, or the state.

* * *

Bloomfield's Comments on Influenza in This Issue.—In the "Medicine Today" column in this issue is a brief presentation by Doctor Bloomfield of San Francisco on the subject of influenza. It is interesting to note that the viewpoint which Bloomfield presents was held by a goodly number of physicians during the 1918 influenza pandemic; and also that in the decade which has followed, few new facts have been discovered that would give us a better control of this disease. We believe Bloomfield sums up the present-day viewpoint of many physicians when he states in his last paragraph, "The essential point is to get the patient to bed early and to keep him there." This simple dictum has been one the value of which seemingly has not been sufficiently comprehended by many physicians and by a very, very large number of the laity. As a consequence many human beings who could still be serving useful purposes on earth have gone to death earlier than was necessary.

* * *

A Personal Experience in 1918.—The writer's experience in the 1918 pandemic was limited to a Students' Army Training Corps unit of about nine hundred or more college students, some six hundred of whom went down with influenza at a time when the barracks had not been erected, and when the sole equipment supplied to the unit by the Government consisted of some iron bedsteads and blankets. The medical staff of the unit consisted

of some six men, the writer being the senior in charge.

Influenza struck the corps suddenly, when the student soldiers were scattered throughout the city. Prompt action being necessary, a medical school was closed down and the men quartered in beds and almost as thickly huddled as sardines. The nursing work was done by volunteer women of the city. At that time it seemed to the writer and his colleagues that the great danger from the disease was the pneumonic complication. They used their army authority to good effect by placing all student soldiers upon whom the diagnosis of influenza was made, immediately in bed; the rule being that the student soldiers were obliged to keep their arms under cover and the blankets up around their necks. The lack of ample toilet facilities in the buildings made more easily possible the adherence to the rule that bedpans and urinals should be used by all patients. Of the six hundred men in the unit who went down with the influenza, only six died.

By contrast, in a much smaller Students' Army Training Corps unit in the same city, which unit was quartered in new buildings, there was a very heavy mortality. The writer in response to an S. O. S. call from that unit took thirteen of their extremely ill men to his own hospital, and of the thirteen some seven died.

Now in the temporary hospital quarters of the smaller unit referred to there was space without end, and the patients were beautifully cubicled off by linen sheets, and so on. This was in strong contrast to the facilities in the writer's unit, where there was hardly space to get between beds. But in the smaller unit the men were, unfortunately, permitted to get up and walk to the tiled lavatories, where they would often be tempted to smoke or loiter before returning to their beds. In the writer's opinion a goodly amount of the mortality in that unit resulted from the pneumonic complications which arose through this action, and the exposure associated therewith. At the time, and since, he has been tempted to believe, as regards influenza, that very well ventilated rooms and physical accessories were of comparatively small value compared to rooms with even temperature and where there was little or no exposure of the bodies of sick persons at a time when, because of a somewhat virulent infection, resistance was low.

A large number of physicians still in practice can look back at their army experiences and remember somewhat similar happenings. As the writer remembers the orders coming out from the Surgeon-General's office at Washington, there was little said in the orders about giving the infected soldiers an adequate amount of rest before being sent back to duty. It seems plausible, in the light of that experience and what we have since learned concerning the nature of influenza and its dangers, that the too early return to duty of many soldiers, following influenza attacks, must have been responsible for a great deal of the mortality that took place at that time.

Of course we were all then in the hurry to drill, drill, drill, and it seemed almost like treason not to let a soldier who was feeling comparatively well return to his company to take up at once the drill and other physical exercise duties of the hour. Our own commanding officer was an old West Point colonel, and the writer was called to task for his medical order of keeping the student soldiers in bed until the temperature had become normal, then permitting them to go out into the college yard, and if fever went above normal, of again going back to bed for two more days; and then if temperature did not go above normal, being assigned to limited duty for a period of three to six days. Yet that method of treatment was one that practically was successfully being carried out in private practice by many physicians.

With the passing of years it has always seemed to us that the measures instituted more than justified themselves. Rest, and the regimen that usually goes with it, rather than drug medication or physical exercise or exposure, must still be acknowledged to be the basic element in therapy in influenza.

This little narrative is presented, not because of any special scientific worth, but to give a personal touch to the conclusions brought out in Doctor Bloomfield's article, and to add additional emphasis to the advocacy of the rest treatment in influenza infections.

CAPITAL INVESTMENT IN MEDICINE

One feature that must be taken into consideration in estimating the cost of medical care is the capital that is invested in a medical career; the hours and the money spent in acquiring a medical degree; the cost of equipment of office and library; the overhead of maintenance; the various expenses that must constantly be met in keeping abreast in the advancement of medicine; the fees for licensure and the various other numerous expenses.

To aid the committee appointed to investigate the cost of medical care, data concerning the complete investment in medicine is being sought from twenty-five thousand physicians selected at random in the United States. From the replies to this questionnaire now being sent out by the American Medical Association asking for information on the various points enumerated, it is hoped that information of material assistance to the General Committee may be compiled. The earnest consideration by all members of the California Medical Association who receive this request for information is urged.

Replies to questions regarding expenses incurred in years past must in many cases be somewhat inaccurate, for medical students have neither time nor inclination to keep accurate bookkeeping accounts of expenditures during the arduous years of preparation. This inaccuracy, however, will be on the side of an underestimation of expenses incurred rather than an overestimation. Replies to questions regarding current office expenditure and overhead should be accurate and easily secured from past income tax statements and office books.

The final report of the committee who sum up the result of the five years study will furnish the first authentic report on the cost of medical care, which report should have vital interest for both patient and physician.

ANCIENT MEDICAL OATHS AND MODERN-DAY CODES OF ETHICS

Reference to Salvatore Lucia's Article in This Issue.—In this issue of California and Western Medicine is printed a most interesting presentation of several ancient oaths, which came into existence when the profession of the healing art began to find itself as such, long before the beginning of the Christian era.

Attention is called to this article because the relation of these ancient oaths and prayers to our modern-day codes of professional conduct makes most interesting reading. The principles expressed therein are worthy of thought by all who believe that a knowledge of the traditions of the past makes for the attainment of higher standards in the present and for the future.

With the Oath of Hippocrates many of our members are familiar; but the Code Fushi Ikai No Ryaku of Koan Ogata, and the Oath and Prayer of Maimonides are probably somewhat new to many young and older members of the profession.

This article by Salvatore Lucia merits perusal by every member of the California Medical Association.

The Morals of Medicine.—Idealism is an essential characteristic of the physician.

The idealism of medicine accounts for the high regard in which medicine has been held by the general public during all the years. It attracts more young people to the work than all other reasons combined; and therein lies a significant thought since youth is the idealistic time of life. The youthful dreams of yesterday become the realities of today. The practice of medicine is the exemplar of youth's conception of beneficent service.

We must cultivate idealism for our own sake as well as for the sake of our successors, since it permeates the entire structure of medicine. It is the soul of medicine. Any variation from the highest impersonal motives by any member of the medical profession excites distrust and loss of prestige for the whole profession in the minds of those we serve.

Idealism is an intangible force, but it is the major influence of our lives.

The general public is deeply interested in the work of the physician, not because of curiosity, nor because of the hope of personal profit; but because of a desire to learn the truth, and because of an innate desire to express an idealism that is common to all of us. This eager interest of the public is fostered by the medical profession, it is at once a source of gratification and dismay. It is gratifying to the medical profession to have so much willingness and power to help at hand, but the dismay seems to be caused by the inability of the lay mind to understand the rules of conduct that govern the medical profession.

The practice of medicine is a thing apart. "It is an art, not a science; it is a calling, not a trade; it is a profession, not a business." Therefore those who practice are subject to rules of conduct rather different from those governing other activities. If we should appropriate their rules we would become something different from what we are, and what we have always been, and would lose one of our most valued possessions.

The most priceless heritage of the medical profession is a record of self-effacing service to mankind. We cannot sacrifice that inheritance for any mess of pottage.

The martyrs in medicine are immortal. We are proud of the fact that service similar to theirs is being given today, but we realize that all progress in medicine is the net result of much study, research and experience, often by many different persons, and we are filled with a humility that prevents us from acclaiming ourselves as individuals. That is why we are impatient with the pretension of the quack and are doubtful of the sincerity and worth of the advertiser. It is immoral and sinful to lay claim to professional skill that our training and experience do not justify. It is almost, if not quite, criminal, thus to jeopardize human life.

Who would presume to appraise the services of those earnest workers whose efforts have resulted in the absolute control of so many diseases? It is not humanly possible, and any attempt to do so would impugn the motives of those unselfish souls who have devoted so much time and effort, and even life itself, for the general good without thought of material gain.

In some few instances a grateful government or a generous found has voted an honorarium, but that was an afterthought and was not the incentive for the work. That is why a discovery in medicine is not patented by an individual. It is not in keeping with the altruism of medicine. All of us enjoy the benefits of every medical discovery as soon as it has been proved.

If the medical profession should become subsidized or commercialized, it would lose incentive and influence. Occasionally an unscrupulous person gets into the profession who fattens on the misfortunes of others. Such persons are the pirates of medicine. They seduce the thoughtless members of the profession with specious arguments regarding the commercial side of medicine. There is no such thing. The professional services of the physician are not susceptible to the interpretations of the rules of conduct of the merchant. A physician is either true to the trust reposed in him by the patient, or he becomes a most despicable bandit as he filches money from the helpless.

The trafficking in the sick, commonly called "division of fees," or "splitting fees" is the canker gnawing at our vitals. The sin lies not in the "division," but in the clandestine character of the transaction. It is a prearranged plan whereby somebody secures an exorbitant fee. The very fact that part, or all, of the transaction is clandestine, is proof enough that those who enter into it realize that it is immoral and so they strive to keep it under cover. In some states the splitting of fees is illegal.

All of our transactions with our patients should be susceptible of itemization. If our patient is satisfied with the various items as presented to him, the division of the fee loses its implication.

Since it is a question of morals, it should be explained frequently to the medical student, and perhaps used as a test question for entrance to the medical school, with the idea that if we cannot make the old sinner see the error of his ways, and mend them, we may replace him later with a young physician of higher ideals.

If the division of fees, as generally understood and practiced, should ever receive the sanction of organized medicine, our doom would be sealed, since it would mean the loss of the respect of the public, and would be fatal to the idealism which makes us what we are. It would justify state medicine. Every right-thinking man values his reputation above money, and therefore we should bend every effort to eradicate this evil which threatens the fair name of medicine and imperils the reputation of all physicians.—*Inaugural Address, Harry R. Trick, President Medical Society, New York State.*

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

General Medicine

Influenza.—It is a happy quality of the human mind that trouble once over is soon forgotten. The devastating pandemic of influenza in 1918-19, sorely as it touched us at the time, left little permanent mark; the recent epidemic comes as an unpleasant reminder of our lack of knowledge of the disease and our almost total inability to deal with it. A brief stock-taking of our information about influenza may therefore be in order.

1. *Etiology.*—It is assumed that influenza is caused by a living virus, but the nature of such a virus is quite unknown. The influenza bacillus, so-called, discovered toward the end of the epidemic of 1890 and advanced by Pfeiffer as the cause of the disease, was tacitly accepted until the pandemic of 1918. It then became clear that the Pfeiffer bacillus was not the primary etiological agent for the following reasons: first of all, it seemed unlikely on clinical grounds alone that an organism as ubiquitous in interepidemic periods in all sorts of infections of the respiratory tract could suddenly produce a disease of such exquisitely fixed characteristics, as epidemic influenza; and, secondly, in certain localities Pfeiffer bacilli were not specially abundant in the influenza cases. It has not been possible to produce influenza experimentally in animal or in man by inoculation with cultures, and finally, strains of Pfeiffer bacilli isolated during the pandemic were shown by serological methods to be of no uniform type as one would expect were they the cause of the disease. Most students of the question are now in agreement that Pfeiffer bacilli are no more than opportunistic secondary invaders on soil injured by the essential virus of influenza; they may, of course, play a part in the secondary bronchopneumonias. The *Bacterium pneumosintes,* brought forward during the 1918 pandemic by Olitzky and Gates as possibly being the real causal agent of influenza, has not substantiated its claims, and at present we must admit our complete ignorance of the etiological agent.

2. *Mode of Transmission.*—Here again we encounter difficulties and contradictions. It is claimed that influenza travels no faster than the most rapid means of communication—a fact which suggests spread from person to person. In individual cases, however, it is often extremely difficult to trace contact, or obvious contact need not be followed by infection. It seems highly likely that the disease is most readily transmissible in the very early stages, or even in the preclinical period; people frankly ill with influenza are perhaps already relatively harmless. It is this fact which makes our attempts at isolation ineffective; the danger lurks in those who are not yet ill and, therefore, are not under control. Be this as it may, we know of no adequate means as yet to control the spread of the disease, and curves of incidence in 1918, even when masks and modern precautions were employed, were identical with those of previous epidemics.

3. *Clinical Points of Importance.*—The most fundamental concept in regard to influenza and the most difficult for the physician to grasp is that the disease is not essentially a respiratory infection. The reason for this error is that influenza is often confused, on the one hand, with upper respiratory tract infections which are not influenza at all (tonsillitis, sinusitis, etc.), or with the secondary pulmonary infections which are prone to occur with or after influenza. Uncomplicated influenza presents the following characteristics:

(*a*) The general constitutional reaction of an acute infection—headache, malaise, general aching, anorexia, etc.

(*b*) A curious hyperemia of the mucous membranes of the air passages, and in more severe cases an erythema of the face and neck.

(*c*) Fever of determinate duration (in uncomplicated cases rarely over five to seven days).

(*d*) Leukopenia.

(*e*) A remarkable tendency to secondary pulmonary infections by various bacteria normally present in the upper air passages—streptococci, pneumococci, influenza bacilli, etc. These bronchopneumonias are not an integral part of the primary disease (influenza), but are complications—frequent, to be sure, but not essential.

4. *Management.*—It is most important for the physician to realize that patients rarely die of uncomplicated influenza; it is the secondary pneumonias which are fatal. Therapy, therefore, should be primarily directed against the development of these complications. The essential point is to get the patient to bed early and to keep him there. The neglected case—the patient who is allowed to be up and to carry on in the early stages of the disease is usually the one who develops pulmonary complications. Not less often a person doing well is allowed to get up too soon, with the result that a pneumonia develops. Rest in bed, then, if possible for several days to a week after the temperature is entirely normal, plenty of fluids, and sedatives, such as codein combined with phenacetin or aspirin, are the main points in the therapy. In our experience vaccines and sera are without rational basis in this disease. Bronchopneumonia, if it occurs, should be handled along the lines employed in ordinary lobar pneumonia.

Arthur L. Bloomfield, San Francisco.

Medicine

The Icterus Index and the Van den Bergh Reactions.—Many tests of the liver function have been developed, but few have survived. In latent and clinical jaundice the icterus index and the van den Bergh test will measure the exact degree of hyperbilirubinemia, and the latter test may at times indicate the source of the faulty metabolism. The application of such tests to the general practice of medicine will depend upon their practicality and upon their importance. The technique carried out by the best equipped laboratories, which requires the use of a colorimeter, is highly satisfactory, but is not usually within the scope of the average physician. Slight modifications render the tests available to all who are prepared to handle blood serums.

It is important to take the blood when the patient is fasting, or at least several hours after a meal, so that the serum will not be clouded by fat. The Luer and needle must be dry to prevent the red cell hemolysis, which will alter the color of the serum. No reagent need be added to the specimen. Sufficient blood must be centrifuged (5 cc.) to give about 2 cc. of clear serum. The arbitrary color unit chosen for the icterus index is a dilution of 1-10,000 potassium dichromate solution, the normal range for blood serum bilirubin content being 4 to 6 units. Standards may be made up, as suggested by Brown,[1] various concentrations representing the number of units desired. Once made up these standards last indefinitely, and the comparison of the unknown serum with them is ordinarily quite simple. However, the standard solutions ranging from 3 to 15 units do not always match a comparable unknown serum, which may have a pinkish tinge. This difficulty may be overcome, by diluting this group of standards 1 to 10, when the unknown serum, diluted 1 to 10, may be readily matched. The icterus index is then a quantitative measure of the degree of jaundice, which may be relied upon except when the pigment carotin is present in the blood stream. This is very unusual. Blankenhorn[2] has recently discussed its clinical differentiation.

The van den Bergh reaction is specific for bilirubin. It depends upon a color reaction with Ehrlich's diazo reagent. The direct and delayed direct reactions show a red violet color only when uncombined bilirubin is present in the blood, that is, bilirubin that has been altered in the liver and then passes from the hepatic-biliary system back into the blood, as is the case in obstructive jaundice. This part of the test is simple and is described in the recent textbooks on clinical pathology. It is a qualitative test for bilirubin in the blood serum, which is due to hepatic or biliary tract disturbances. The indirect van den Bergh reaction, like the icterus index, is a quantitative measure of the total amount of bilirubin, which is present. It is measured either in mgs. per 100 cc. of blood, or by dilution, 1 to 200,000 representing 1 unit. Normal values are 0.1 to 0.2 mgs. per cent, or 0.2 to 0.4 units. It may also serve as a qualitative test when the source of the increased bilirubin is red blood cell hemolysis, as in pernicious anemia. The technique of this part of the test is more difficult, but may give valuable information in a rare case. If the icterus index is done in conjunction with the direct van den Bergh reactions, the indirect reaction may be omitted for most practical purposes, although it has been considered slightly more accurate.

The tests are of the greatest importance in biliary tract disease, but are frequently of value in extrabiliary tract conditions. In cases of latent jaundice where the increase in serum bilirubin is not sufficient to cause staining of the skin or mucous membranes, the icterus index will show that there is a disturbed pigment metabolism. It varies from 7 units to 15 to 20 units before clinical jaundice appears. In abdominal disorders this may be a deciding factor in localizing trouble in the gall bladder or liver. In cases of jaundice due to common duct obstruction or to severe hepatitis it is a far more accurate method of following an increase or diminution in the concentration of bile pigment than to rely on clinical observations alone, particularly when an opportune time must be decided upon for the removal of a gall stone. In hemolytic jaundice, whatever the origin, the icterus index will be increased, and the direct van den Bergh reaction will be negative or very markedly delayed. The tests may assume a very important rôle in distinguishing between cerebral hemorrhage and thrombosis, between a truly bloody or contaminated spinal fluid, between typhoid fever and tuberculosis or appendicitis, and in following the results of transfusions or the treatment of polycythemia with phenylhydrazin.

If expert laboratory facilities are at hand they should be used, but these tests should not be neglected by those not so favored. Once the necessary standards and solutions are at hand the icterus index and van den Bergh reactions can be carried out with very little difficulty. They deserve a more general use which will lead to a widespread understanding of their interpretation and limitations.

GARNETT CHENEY, San Francisco.

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2. Blankenhorn, M. A.: Ann. Int. Med., 1927, 1, 74.

Tuberculosis

Vaccination Against Tuberculosis with B. C. G. (Calmette).—Ever since the experiments of Koch, which led to the production of tuberculin, it has been known that an infection with living tubercle bacilli brings about certain changes within the body of the host, which render it resistant to further inoculations. So far, however, no method has been devised which will produce a complete and permanent immunity. Experiment has shown that a satisfactory resistance can be established only by an infection produced by living bacilli.

Most children are infected with tuberculosis before adolescence. If this primary infection is not produced by more bacilli than the host is able to withstand, it creates a specific resistance so that he is able thereafter to withstand a larger number

of bacilli without becoming again infected, and causes future infections, which may occur, to assume a chronic nature. Owing to the fact that a complete immunity seems to be unattainable, the dream of experimenters has been to produce an infection in childhood, with a bacillus possessing so little virulence as not to endanger the child, and yet at the same time, one that is able to produce histological tubercle which results in raising the patient's specific immunity and protecting him from environmental infection.

Calmette and Guerin have produced such a bacillus, which they have called B. C. G. (Bacillus Calmette-Guerin). This bacillus has been grown for many generations on an alkaline medium containing ox bile, and its virulence is so low that it does not produce disease in animals, even the guinea-pig. It was first used in human beings, on an infant whose mother died of tuberculosis a few days after delivery, and who was obliged to be reared by a grandmother who had open tuberculosis. The danger to which this child was exposed is evident. No harm came to the child as a result of the vaccine, and thus far it has not developed tuberculosis. So it seems evident that the infant was not harmed by the vaccine, and further that it did receive protection from environmental infection.

B. C. G. is given per os in a teaspoonful of milk. The first dose is given within twenty-four hours after birth, and two more doses are given forty-eight hours apart. Each dose contains 400,000,000 bacilli. The oral administration is based on the fact that during the early days of life bacteria readily pass through the mucous membrane of the intestinal tract.

In the past four years nearly one hundred thousand infants have been vaccinated with B. C. G. in France alone, and probably about the same number in other countries. Many of these were obliged to live in an environment of open tuberculosis; in fact, such infants were particularly sought out for the test. So far, no instance of virulent tuberculosis has definitely been laid to the bacilli used in the vaccination, and clinical experience indicates that a smaller number of children have become infected through their environment than is normal for the conditions under which the vaccinated children live. A definite statement regarding the status of B. C. G., however, can be made only after further observation.

F. M. Pottenger, Monrovia.

Urology

Hematuria.—The importance of the symptom of hematuria has stimulated the production of nearly three-score articles in the English literature during the past three years. Almost without exception, each article emphasized the importance of this symptom as a danger signal and urged the necessity of an accurate diagnosis in every case. Hematuria is frequently the first sign of tumor, stone, or tuberculosis, and every patient with the symptom should be considered as possibly having one of these conditions until proven otherwise. If these rules were lived up to, many a case which now progresses to a hopeless state would have the benefit of early treatment.

There are many conditions in which hematuria might occur as a symptom. Eisendrath[1] has named some fifty, and divides them into three classes: (*a*) Systemic causes such as malaria, hemophilia, scurvy. (*b*) Lesions of adjacent organs, including appendicitis, menstrual and rectal disorders. (*c*) Lesions in the genito-urinary tract, the most important of which are calculus, tumor, and tuberculosis.

The examination of a patient with hematuria should be made at the time he is bleeding so that the source of the hemorrhage can be determined by observation of the bleeding point if in the urethra or bladder, or by seeing the bloody spurt from either or both ureteral orifices if the lesion is higher up. With the present-day irrigating cystoscope the field can be kept clear, and an accurate observation made. For this reason it is important to insist on a bladder observation through the cystoscope when the patient with hematuria first presents himself, and if it is found that the bleeding is from above the bladder a kidney study is indicated.

The patient whose hematuria has been treated palliatively, without a diagnosis having been made, and who has been assured that his symptom was of no consequence, is often later found to have a malignancy or other condition for which early treatment is the all-important factor in saving life.[2] After study of a series of cases presenting hematuria as a symptom, Pelouze[3] reports that the average elapsed time between the appearance of hematuria and the request for cystoscopy is two years, and that 90 per cent of cases with this symptom are treated with rest and drugs without a diagnosis being made. MacKenzie[4] has analyzed a series of 821 cases and reports 70 per cent were due to calculus, tuberculosis, cancer, or other surgical lesion, and that in most of the remaining 30 per cent the treatment was influenced materially by the cystoscopic diagnosis made. After consideration of these figures how can one temporize with a danger signal so important as hematuria, when there is so great a possibility that the symptom is due to a condition which requires early treatment to save the patient's life? Would it not pay to advise every patient with hematuria to have a thorough diagnosis made, since statistics show that seven out of ten will be so materially benefited by it? With present-day facilities, such as the cystoscope, x-ray, and renal function tests, an accurate diagnosis can be made in almost every case, thus banishing the uncertainties of symptomatic diagnosis.

Roger W. Barnes, Los Angeles.

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3. Pelouze, P. S.: Hematuria and Guessing, Atlantic M. J., 28:19, October, 1924.
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STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

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MORTON R. GIBBONS.....President-Elect
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EMMA W. POPE.....Secretary

OFFICIAL NOTICE

1929 Annual Meeting.—Hotel del Coronado, Coronado Beach, where our convention in May of 1929 will be held, in its long and colorful history has become known in almost every part of the civilized world as one of the outstanding pleasure places of California. The same reasons that have popularized it with the traveling public have made Hotel del Coronado nationally recognized as an ideal headquarters for conventions. Its location is unique and its advantages manifold, not only for the enjoyment of delegates and guests, but for the accomplishment of the more serious purposes for which all business and professional meetings of this character are planned.

One fact is paramount. Whatever the direction his fancy or inclination may take in recreation, no person can visit Coronado Beach without having a memorably pleasant time. There is a distinctive, homelike atmosphere that is impressed alike upon those who seek relaxation and rest or who delight in sport or social activities.

Swimming, aquaplaning, boating, horseback riding, golf, and tennis are popular diversions. There are three fine grass golf courses where guests are privileged to play. Two of them within a half-hour ride, and one, the Coronado Country Club course, within walking distance of the hotel. Motoring is enjoyed over hundreds of miles of scenic highway to places of special interest. Among the latter is Agua Caliente, the beautiful new amusement center across the Mexican border line, fourteen miles via paved highway from Coronado. Entertainment within the hotel each evening is never lacking, and includes dancing in ballroom or casino, concerts, moving-picture shows, prize bridge, and frequent special attractions.

Convention Facilities. Hotel del Coronado has comfortable accommodations in rooms and suites for over eight hundred guests. Glass-enclosed sleeping porches, also used as sitting rooms, adjoin many of the suites. Surrounding a patio of flowers and semitropical foliage about the size of an ordinary city block the hotel is completely equipped with the Grinnell automatic sprinkler system. It is considered the most complete installation of this system in any building in America.

The great circular ballroom, with stage, is ideal for holding general meetings, while smaller parlors on the main floor are available for section work. Exhibits may be displayed to advantage in the sun parlor, which almost completely surrounds the large ballroom. The main dining room and Crown Room adjoining accommodates over five hundred persons, and with rearrangement of tables for banquets will provide comfortable seating for over one thousand. Neither ballroom or dining room have a pillar or post, and both are equipped with the most modern loudspeaker and public address system. Hotel del Coronado radio broadcasting is done by remote control from the hotel over KFSD, San Diego.

Hotel del Coronado is reached by airplane, train, steamship, or automobile via San Diego. Coronado Beach is within fifteen minutes' ride of San Diego's transportation terminals, business, and theater district. Convention rates are as follows: Per day, $7 single, and $13 double with detached bath, but near one; $8 single, and $15 double with private bath. This tariff includes rooms and meals.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held on Monday, December 17, 1928, at 8:20 p. m., with Doctor Liliencrantz in the chair.

Madame Halldis Stabell gave the first talk of the evening, her subject being "Posture." She demonstrated with a living model the methods of educating various groups of muscles to properly perform their function. The second paper of the evening was a study of "Tuberculous Contact Children," by Ann

Speedboat racing for national championships in San Diego Mid-Winter Regatta

Martin. Doctor Martin directed attention to the large number of children in contact with tuberculous patients who give positive tuberculin reactions or other evidences of tuberculosis, and emphasized the prophylactic care necessary in handling these cases. Doctor Martin's paper was discussed by Doctor Sargent, who demonstrated chest plates on a number of children used in Doctor Martin's study. Doctor Beaudoux reported several interesting cases, the first being a group of cataracta negra cases. The second was a case of mastoiditis with complications, and the third was an interesting calcium deposit discovered at operation in the routine removal of tonsils. The lith was oval and two centimeters in its longest dimension.

GERTRUDE MOORE, *Secretary.*

HUMBOLDT COUNTY

The Humboldt County Medical Society held their annual meeting Tuesday evening, January 22.

The following officers were elected: Charles C. Falk, president; Edgar Holm, vice-president; John A. Lane, treasurer; Lawrence A. Wing, secretary; Charles C. Falk, delegate; Charles C. Cottrell, alternate.

The society had dinner at the Eureka Inn at 6:30.

John A. Lane gave the paper of the evening, "Arrhythmia of the Heart," which was well presented and discussed.

Nineteen members were present.

During the following year we shall have a speaker from San Francisco every other meeting.

LAWRENCE A. WING, *Secretary.*

LOS ANGELES COUNTY

Los Angeles Obstetrical Society.—The December meeting of the Los Angeles Obstetrical Society was held on December 17 at the Anita Baldwin Clinic, at which time Dr. William M. Happ and Dr. W. D. Sansum were the speakers of the evening. Doctor Happ considered the diet of the nursing mother in a comprehensive review of her requirements as to the various foods. He pointed out that protein was the most important element of food in assuring an abundant lactation, since the mother's output of this element is considerably increased. Likewise the carbohydrate element must be richly supplied if the mother is to do the work required of her. Doctor Sansum considered the dangers of fat to the pregnant and nursing patients, and emphasized that the average diet contains fat far in excess of the needs of the patient. A two to one ratio of carbohydrates to fat is a necessity which is frequently forgotten. He believes that this is due in large measure to the inordinate fear of diabetes, and pointed out the duty of educating patients to overcome this phobia. Milk as a food is as valuable to the class of patients under discussion, when the cream has been removed, as the whole milk, and particularly rich milk is dangerous because of its high fat contents. Acidosis from the overfeeding of fat is a common finding even in normal individuals on their accustomed diet, and is more to be feared in the nursing mother because of her mistaken idea that she requires a large amount of particularly rich foods.

WILLIAM BENBOW THOMPSON,
Obstetrical Section Secretary.

SAN BERNARDINO COUNTY

Minutes of the meeting of the San Bernardino County Medical Society on January 3, held at the County Hospital.

Minutes of the previous meeting were read and approved.

Dr. W. W. Eldredge of Fontana was accepted as a transfer from the Los Angeles County Medical Association.

A communication from the industrial accident section of the Los Angeles County medical society regarding "Corresponding Memberships" was read.

As provided by the constitution and by-laws, a written communication for a change in the constitution and by-laws was presented and will be voted upon at the next meeting.

There were about forty members present, including Dr. Edward Bull, chief orthopedic surgeon of Shrine Hospital, San Francisco, who aided in the program.

Meeting adjourned at 10:30.

Program:

Fractures and Dislocations of the Spine—Dr. John C. Wilson, Los Angeles. Discussion opened by Dr. F. E. Clough. Cases of these injuries from the County Hospital were shown.

Presentation of General Orthopedic Cases by Dr. Kenneth Dole. Discussed by Doctor Wilson. An invitation was again extended to every member to bring in any kind of an orthopedic case for diagnosis and advice.

The following resolution governing industrial medical practice was passed:

And Whereas, Said American Medical Association has also announced as a fundamental principle that it is detrimental to the public good and degrading to the profession, and therefore unprofessional to give or receive a commission;

Wherefore, It shall be unprofessional for any member to dispose of his services in industrial medical practice for any fee or compensation less than that prescribed by said fee schedule and such modifications therefor as shall from time to time be approved by this association;

Provided, That if such employment is upon a salary basis, such salary, taking all the conditions of employment into consideration, must be adequate, and the council of the member's county society shall be the final judge of the adequacy thereof.

E. J. EYTINGE, *Secretary.*

SAN DIEGO COUNTY

The December meeting of the medical society on the eleventh, following dinner at the Athletic Club, was a symposium in favor of better care of mother and child in San Diego County, which county, however, enjoys a considerably better record than does the State of California as a whole.

Doctor Cordua of the San Diego Health Department read a carefully prepared statistical report on San Diego's death rate during the first year of life, inquiring into the causes of death and methods available to modify these causes. Discussion was given the paper from every angle of the profession by the following members: Doctors McClendon, Thornton, Lesem, Sisson, Stevenson, and Wier.

The second paper of the symposium was by Doctor Parsons of Johns Hopkins University, who made a careful inquiry into the reasons why the maternal death rate is higher in this country than in most countries that enjoy an advanced civilization. Like Doctor Cordua's paper it was given a liberal discussion, entered into by Doctors Wier, Stevenson, Charlotte Baker, Jennison, Ross Carter, Gillispie, Hoffman, Harvey Jackson, Will Potter, and Lesem. Father Mouillinier, who was a guest of the evening, injected additional interest into the discussion by raising the question as to whether or no pregnancy is a pathological process.

Clean-cut statistical inquiries have a way of provoking discussion and criticism that is very helpful to the honest, inquiring mind. On the whole the evening is likely to bear fruit in the way of efforts to improve the conditions existing.. In passing it may be emphasized that the local profession entertains a just pride in its Public Health Department, which expresses the spirit of scientific research in no small degree.

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The December meeting of the staff of Scripps Memorial Hospital was featured by an excellent paper on the preoperative and postoperative care of the heart by Dr. Hall G. Holder. It was comprehensive and practical, going into the details of therapy in a very satisfactory way.

* * *

The evening of January 5 the Scripps Metabolic Clinic presented Dr. Leonard Rowntree as their an-

nual offering in behalf of San Diego medicine. Doctor Rowntree discussed the action, selection and uses of the diuretics in a scholarly manner. His presentation was rendered more effective by liberal lantern slide illustrations.

Preceding this treat the medical society and many invited guests from out of town were the guests of Directors McRae and Harper of the clinic at an excellent dinner at Casa de Mañana.

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The December reorganization meeting of the staff of Mercy Hospital resulted in the following elections:

Surgical Section—Charles Fox, chairman; E. C. Lee, vice-chairman; H. D. Cornell, secretary.

Medical Section—J. E. Jennison, chairman; F. F. Churchill, vice-chairman; F. J. Ratty, secretary.

Obstetrical Section—T. F. Wier, chairman; Ross Carter, vice-chairman; H. K. Graham, secretary.

Pediatrics Section—A. J. Thornton, chairman; D. K. Woods, vice-chairman; S. J. McClendon, secretary.

Laboratory Section—L. C. Kinney, chairman; R. E. Elliott, vice-chairman; W. O. Weiskotten, secretary.

The chairmen of the sections with two representatives from the Sisterhood constitute the executive committee. The officers of this executive committee are: Charles Fox, chairman; J. E. Jennison, vice-chairman; A. J. Thornton, secretary.

The regular staff meetings under Chairman Fox will be held the third Tuesday of each month at eight o'clock.

Robert Pollock.

SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held January 3, at 8:30 p. m. in the hall of the Medico-Dental Club, 242 North Sutter Street, Stockton.

The meeting was called to order at 8:30 p. m. by the retiring president, John J. Sippy, who presented the new president, C. V. Thompson, who expressed appreciation and thanks to the society for the honor done him and promised to carry out the wishes of the society.

Twenty-nine were in attendance. Those in attendance were as follows: Doctors N. P. Barbour, J. W. Barnes, E. L. Blackmun, J. F. Blinn, H. J. Bolinger, C. A. Broaddus, F. J. Conzelmann, J. T. Davison, Linwood Dozier, C. F. English, E. Frost, P. B. Gallegos, Samuel Hanson, G. H. La Berg, S. E. Latta, R. V. Looser, Grace McCoskey, R. T. McGurk, W. T. McNeil, B. J. Powell, G. H. Sanderson, F. B. Sheldon, J. J. Sippy, Margaret H. Smyth, Hudson Smythe, C. V. Thompson, and A. L. Van Meter.

Doctors Harder and Pinney as visitors, and Edwin L. Bruck as guest and speaker of the evening.

The minutes of the previous meeting were read and approved. The admission committee recommended Doctors Eisuke Ishikawa and Ellick J. Papermaster for membership. In accordance with the constitution the chair declared Doctors Ellick J. Papermaster and Eisuke Ishikawa duly elected members of this society.

Dr. John J. Sippy stated that the program committee was not able to secure Doctor Sinai as speaker of the evening on the "Cost of Medical Care of the Sick." He stated that the Health Department expected to make a survey of one hundred families of San Joaquin County for the committee on "Cost of Medical Care," and desired the approval of the society. He stated that the survey would be made without cost to the society and limited to families outside of the city of Stockton.

Doctor Bolinger moved, seconded by Doctor Broaddus, that the society approve the survey of one hundred families in the county of San Joaquin for the committee of "Cost of Medical Care of the Sick." The motion carried.

The president presented Doctor Bruck of San Francisco, who spoke on the subject, "The Syndrome of Coronary Occlusion." His interesting and instructive talk included: historical facts about coronary occlusion; anatomy of coronary vessels; causes of coronary occlusion; symptoms; Herrick's classification; treatment; prognosis.

Doctor Bruck related the history of three patients suffering from coronary occlusion and pointed out the salient symptoms, the outstanding characteristics, the treatment, and prognosis.

The subject was discussed by Doctors Barbour, Sanderson, and Sippy.

In closing, Doctor Bruck stated that coronary calcification is often present in patients in whom calcified vessels in the legs have been demonstrated by x-ray.

There being no further business the chair conveyed appreciation and thanks to the speaker of the evening for his practical talk.

The meeting adjourned at 9:50 p. m.

Fred J. Conzelmann, *Secretary.*

SANTA BARBARA COUNTY

The annual meeting of the Santa Barbara County Medical Society was held at the University Club on Monday, January 14, with President W. D. Sansum in the chair.

At the banquet preceding the meeting there were present forty-three members and two guests. During the banquet Doctor Profant, at the piano, gave a most interesting entertainment, and also led the society in singing.

Immediately following the banquet Doctor Mellinger's daughter gave three selections on the harp, which were greatly appreciated, and splendidly rendered.

Doctor Sansum then announced that the society would go into executive session immediately before listening to the paper of the evening. At this time the minutes of the previous annual meeting were read and approved. The treasurer's report was also read and ordered filed, and the president appointed an auditing committee consisting of Doctors Means and Robinson. There being no further business the society then balloted upon officers for the following year, and the following were elected: N. H. Brush, president; Hugh Freidell, vice-president; W. H. Eaton, secretary-treasurer; Bard S. Berry, first vice-president-at-large; Samuel Robinson, second vice-president-at-large.

As the delegate and alternate are elected for two years and same were elected in 1928, there were no nominations.

The president then introduced to the society the new county health officer, Dr. R. C. Main.

The following committees were then appointed:

Program—Doctors Freidell, Ullmann, and Eaton.

Board of Censors—Doctors Van Paing, Profant, and Manning.

There being no further business the executive session adjourned to listen to the scientific program. This was given by Dr. Carl Rand of Los Angeles, who gave a most interesting talk on "Recent Progress in Brain Surgery." He passed around to the members of the society an original edition of Bell's work published in 1820, and discussed the wonderful advancement in brain surgery since that date.

This was followed by questions and discussions by Doctors Pierce, Ullmann, Atsatt, Koefod, Stevens, and Lamb.

At the conclusion a rising vote of thanks was tendered Doctor Rand for his courtesy in coming to speak at the meeting.

W. H. Eaton, *Secretary.*

SANTA CRUZ COUNTY

The annual business meeting was held at the Hotel Appleton, Watsonville, January 10. The following officers were elected to serve during 1929: W. E. Fehliman, Santa Cruz, president; M. F. Bettencourt, Watsonville, first vice-president; J. C. Farmer, Felton,

second vice-president; S. B. Randall, Santa Cruz, secretary-treasurer; P. T. Phillips, Santa Cruz, delegate; S. W. Dowling, Santa Cruz, alternate; Liles, P. T. Phillips, and Hatch, censors.

The application of Dr. J. Harrington was approved for membership in the society. The transfer of Dr. A. C. Atwood, Soquel, from the Lassen-Plumas society was approved.

With the advent of a new year it was decided to hold bimonthly meetings during 1929 instead of the quarterly meetings as used during 1928. The members expressed their desires in the matter of speakers and subjects for the year, and Dr. J. C. Farmer, chairman of the program committee, is now busy outlining definite programs. The next gathering will be held at Alexander's, the well-known Italian villa located at Boulder Creek in the Santa Cruz mountains, on February 14.

Following the business of the evening Dr. Alfred Phillips addressed those present by various features pertaining to his recent trip to New York and other medical centers. The subject of regional anesthesia was especially discussed, as the doctor took Doctor Labat's course while in New York City.

SAMUEL B. RANDALL, *Secretary.*

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STANISLAUS COUNTY

One of the best attended and most interesting meetings of the Stanislaus County Medical Society was held in Turlock, January 11. Following a turkey dinner at Kline's café at 6:30, the meeting was called to order by the president, Dr. J. W. Morgan.

Those present were: Doctors Robertson, Morris, Morris Jr., Hartman, Maxwell, Gould, McPheeters, Pearson, Peter, Falk, Hagedorn, Porter, Collins, Reamer, Bemis, Smith, Cooper, Surryhne, Finney, Stewart, Morgan, Julien, Hiatt, Mr. Bradley of Modesto, guest, and the speakers of the evening, Dr. Henry Stephenson and Dr. R. K. Smith of San Francisco.

Dr. A. J. Colberg of Newman was elected to membership in the society.

A communication from Scott's drug store was read and tabled.

It was moved and seconded that the president appoint a committee to consult the Board of Education and the school physicians relative to their rules and regulations, and report at the next meeting. The president appointed Doctors DeLappe, Maxwell, and Morgan.

Election of officers was held, and the following elected: F. J. Petr, president; C. B. Benson, vice-president; R. S. Hiatt, secretary-treasurer; C. E. Pearson, censor for three years; J. W. Morgan, delegate; R. E. Maxwell, alternate.

Dr. Henry Stephenson gave a very practical and instructive talk on three common problems of pregnancy, namely, hemorrhage of pregnancy and toxemias of pregnancy, arrest of the head high in the pelvis.

Following Doctor Stephenson's talk, Dr. R. K. Smith of San Francisco, discussed the same problems emphasizing important points.

The meeting was then adjourned.

R. STEWART HIATT, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Placer County—Paul D. Barnes, Loomis.

San Diego County—Hall G. Holder, William V. Horton, San Diego.

San Francisco County—David K. Chang, Curtis Lane Falk, Anna M. Mosgrove, Edgar J. Munter, Gerasim S. Nazarin, Horace C. Pitkin, Reuben Ratner, San Francisco.

Transferred Members

Alton C. Atwood, from Lassen-Plumas to Santa Cruz County.

Deaths

Magee, Thomas L. Died at San Diego, January 3, 1929, age 92 years. Graduate Medical Department University of Nashville, Tennessee, 1863. Licensed in California, 1884. Doctor Magee was an affiliate member of the San Diego County Medical Society, the California Medical Association, and a member of the American Medical Association.

Mohun, Charles Constantine. Died at San Francisco, December 31, 1928. Graduate of University of California, 1890. Licensed in California, 1891. Doctor Mohun was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Stein, Frederick L. Died at San Francisco, January 7, 1929, age 44 years. Graduate of Hahnemann Medical College of the Pacific, California, 1917. Licensed in California, 1917. Doctor Stein was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARY

Reuben Martin Bonar
1869-1928

Dr. Reuben Martin Bonar died December 19, 1928. He was born in Rosbys Rock, West Virginia, November 24, 1869. He graduated in medicine from the Ohio Medical College, 1892, and practiced in Helron, Ohio,

until 1898, when he became a captain in the United States Medical Corps, Spanish-American War. He came to Santa Rosa in 1902 with his family, and had made his home there since.

Doctor Bonar was a member of the Sonoma County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

He is survived by his wife, Laura W. Bonar; two daughters, Mary E. and Jane Bonar; and a son, Perry A. Bonar, to whom the sympathy of his many friends is extended.

NEVADA STATE MEDICAL ASSOCIATION

R. R. CRAIG.....President
W. A. SHAW.....President-Elect
H. A. PARADIS.....First Vice-President
R. P. ROANTREE.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

Washoe County Medical Society held its first meeting of the new year at the Sciots Club, Reno.

Dr. J. LaRue Robinson, newly elected president, was inducted into office, and told what the purpose of the society would be for the year. The secretary announced that the year's programs had been arranged and printed, and a copy of the same sent to every physician in Nevada.

The scientific paper for the evening was a travelogue by the secretary of the Nevada state medical society, Dr. Horace J. Brown. Doctor Brown's talk was along the line of discussion heard while in Chicago attending the convention of state medical secretaries of the American Medical Association. The doctor brought out the gist of a discussion of that meeting that related to the necessity of providing better medical and surgical relief to the great middle class. As everyone knows, the two extremes of society receive the best medical care: the rich because they can afford it; the poor, because they become clinic patients who are willing to submit to the complete professional routine necessary for relief. But the great middle class, who are neither paupers or millionaires, have to consider the cost, and are in very many instances utterly unable to receive such attention as they deserve, by reason of insufficient funds. The doctor also talked at length on the clinics visited, and demonstrated some especial lines of technique done at some of the hospitals. Not always is the most learned from the masters of the science, but, as a celebrated surgeon once said, one sometimes learns much from the poor surgeon in what not to do.

* * *

The question of a community hospital has been before the citizens of Reno for several years past. In the last legislature the bill for a community hospital was introduced, but since the title of the bill did not cover the text of the bill, it was lost. The possibility of the legislature putting the same through this term was discussed by State Senator Cowles. The sentiment for it is strong, and it is hoped that since Reno will probably be a hospital center for the state at large, the bill will pass.

* * *

Further information with reference to medical legislation was brought before the society by Dr. E. E. Hamer of Carson City, the present secretary of the Nevada State Board of Medical Examiners. Doctor Hamer pointed out many of the defects of the present Medical Practice Act of Nevada, such as inability to prosecute certain impostors who had surreptitiously obtained license in Nevada. It was unanimously carried that Doctor Hamer draft a new medical practice act and submit the same for passage at the coming session of the legislature. Also it was moved to raise the fee for reciprocity to $100. The present fee is but $25. That there may be available sufficient funds to enable the secretary to make investigations, to prosecute and carry on the work of the office in a satisfactory manner, legislation to secure an assessment of a yearly per capita fee will be sought. If these are incorporated into the law, some of these slick impostors who have heretofore practiced in security in the State of Nevada will find less sense of peace.

The general spirit of the meeting was a get-together for the best interest of those who want to practice their profession in a just and ethical manner. We hope to be able to report progress along this much needed line of medical endeavor.

THOMAS W. BATH, *Secretary.*

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

OFFICIAL NOTICE

Annual Meeting.—The date for the coming annual state meeting of the state medical association is officially announced for the first, second, and third of July, at Salt Lake City. All members please take note and arrange their engagements accordingly in order to attend.

NEWS

Holy Cross Hospital Meeting.—The monthly meeting of the Holy Cross Hospital Clinical Association for December, 1928, was held in the lecture room of the hospital the evening of December 17.

Dr. Fuller Bailey presented an exceptionally interesting case of "Multiple Myeloma," with lantern slides to illustrate the condition. Dr. L. Ossman discussed the paper, and other discussion followed.

Doctor Clayburg presented a case of "Gastric Ulcer."

Dr. L. B. White followed with a very interesting case of "Cervical Rib," and described the treatment.

The members exhibited marked interest in these case reports.

Report of the secretary for the year showed the association in excellent shape, with no delinquent dues and a comfortable balance on hand.

Election of new officers resulted in the promotion of the former secretary, Dr. George Curtis, to the presidency, and the selection of Dr. L. Ossman to be secretary-treasurer for the year of 1929.

The Salt Lake Academy continues its weekly meetings for review on Thursday nights after the holiday intermission. Interesting papers and reviews are presented each Thursday evening, followed by a general discussion of pertinent medical topics. Attendance is by invitation, and very interesting sessions are held.

Classes for Medical Reserve Officers.—We desire to again call attention to the classes being held in the headquarters of the Third Reserve Area, 104th Division, Officers Reserve, Vermont Building, for medical reserve officers, and to urge all local medical reserve officers to attend. Lectures by a Detached Officers List officer are given twice monthly on subjects on which all medical officers of the Army should be posted, and all members of the commissioned personnel will find a couple of hours spent in attendance well worth while.

Tear Gas Used in New Fumigation Method.—In connection with the prevention of the introduction of quarantinable diseases into the United States, the Public Health Service maintains maritime quarantine stations at all the principal seaports in the United States and its possessions through which all ships from foreign ports must pass prior to entering the port. When ships arrive from foreign ports where quarantinable disease exists they usually are required to undergo fumigation for the destruction of rodents and insects which might convey infection.

In order to improve the efficacy of fumigation and to reduce the amount of ship's time required for proper fumigation, the Public Health Service is constantly devising new and improved methods in fumigation procedure.

A recent report issued by the Public Health Service accentuates the advisability of using cyanogen products which include a sufficient amount of tear gas to serve as a warning agent.

The subject of ship fumigation is one of the greatest sanitary importance. Until a more efficient method for the eradication of potentially plague-infected rodents is devised and its dependability proved beyond reasonable doubt, fumigation will continue as the procedure of choice.—*Health News.*

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Readers' Forum; California State Board of Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Meeting of the American College of Surgeons at Los Angeles on February 18 and 19.—The district comprised by California and Nevada of the American College of Surgeons meets in Los Angeles on the 18th and 19th of February.

This meeting promises to be a very interesting and important one. Word has been received from headquarters in Chicago that some of the leading surgeons of the East will attend the sessions. These meetings are always well attended by the profession and those who are interested in hospital administration, and will be open to all members of the medical profession.

Surgical clinics by prominent surgeons from other states will be held on these days.

The scientific programs for the meetings are being arranged, and give promise of special merit.

William H. Gilbert, F. A. C. S., is chairman of the California and Nevada division of the American College of Surgeons, as well as chairman of the committee on arrangements, which consists of Doctors William H. Kiger, Harlan Shoemaker, Walter L. Huggins, Robert V. Day, Charles T. Sturgeon, Clarence G. Toland, A. Ray Irvine, W. E. Waddell, Foster K. Collins, Charles D. Lockwood, and Hiram C. Weaver, secretary.

Headquarters for the convention will be in the Biltmore Hotel, where all meetings will be held. The banquet and public meeting will be held in the Sala de Ora. All members of the California county medical societies are invited to the banquet, at which many prominent men of the profession will speak.

The general meeting on Tuesday night, February 18, will be open to the public, and should be largely attended by everybody interested in the welfare of scientific medicine.

Popular Medical Lectures.—The Stanford University Medical School announces the forty-seventh course, to be given at Lane Hall, north side of Sacramento Street near Webster, San Francisco, on alternate Friday evenings, eight oclock sharp. All interested are cordially invited to attend. Three lectures have already been given. The remainder of the series are:

Friday evening, February 15, 1929: "Facts and Fancies of Rheumatism"—Leonard W. Ely, M. D.

Friday evening, March 1, 1929: "The Historical Development of Anesthesia"—Chauncey D. Leake, Ph. D.

Friday evening, March 15, 1929: "A Study of the Cost of Medical Care"—Ray Lyman Wilbur, M. D.

The Lane Medical Lectures for 1929 will be given in San Francisco at Lane Hall, Sacramento Street near Webster, at 8:15 p. m. on the following dates by Professor Walther Straub of Munich:

April 15—"Recent Developments in Narcosis."

April 16—"Narcotics as a Means of Enjoyment in Theory and Practice."

April 17—"Pharmacology of Heavy Metals."

April 18—"Chemistry and Pharmacology of Digitalis and Its Allies."

April 19—"Chemistry and Pharmacology of Digitalis and Its Allies" (concluded).

There will be moving-picture demonstrations of the manufacture of arsphenamin and of the actions of camphor; time to be announced later.

Stanford University Report.—The Lane Medical Lectures for 1928 were delivered by Dr. F. d'Herelle, professor of bacteriology, Yale University, and formerly directeur du service bacteriologique du Conseil Sanitaire, Maritime et Quarantenaire d'Egypt, Alexandria, on the evenings of October 22 to 26, inclusive. Doctor d'Herelle spoke on the discovery and nature of the bacteriophage and its possible use for therapeutic purposes. The lectures were well attended and were received with great interest by the medical profession.

Graduate Summer Course in 1928.—A short summer course was given for graduates in medicine from July 2 to July 14, 1928. It was attended by nineteen physicians. The object was to make the practitioners acquainted with the most recent developments in medical science and practice.

Gifts.—A gift of $10,000 has been received from Dr. Adolph Barkan, emeritus professor of structure and diseases of eye, ear, and larynx, as an endowment of the department of history of medicine and natural sciences of the Lane Medical Library.

Dr. P. J. Hanzlik, professor of pharmacology, and Dr. H. G. Mehrtens, professor of neuropsychiatry, received a grant of $3000 from the Committee on Research in Syphilis for their coöperative research on the treatment of syphilis. This work was further supported by a gift of $1000 received by Professor Mehrtens from Mrs. Anne Tallant Brodie.

The physiotherapy department received an additional gift of $1000 from Miss Helen E. Cowell for physiotherapy treatment of indigent patients.

Dr. H. K. Faber, professor of pediatrics, received an additional gift of $1000 from Mr. Edward M. Mills for free beds in the children's ward.

Grace Deere Velie Metabolic Clinic.—Construction on the Grace Deere Velie Metabolic Clinic at Carmel commenced on January 10, 1929.

This clinic is made possible through the generosity of Mrs. Grace V. Harris, who is furnishing an endowment for completely equipped laboratories for research in metabolic diseases and for the housing of about twenty-five patients. The initial expenditure will be in the neighborhood of $200,000, and with ample provision made for continued maintenance funds for research. The clinic will not be run for profit, but its aim is primarily to provide ample facilities for diagnosis and treatment of patients suffering from metabolic disturbances and for advancing the knowledge of these diseases through original research. The staff will consist, at the beginning, of four full-time medical men, specially trained in this branch of medicine. Dr. R. A. Kocher, formerly instructor in research medicine at the Hooper Foundation, University of California, will be medical director. Dr. J. R. Blackman, now in the department of roentgenology at Stanford Medical School, will be in charge of the x-ray department. Two other appointments are yet to be made.

The general plan of the clinic, its purpose and administration, will be similar to that of the Scripps Clinic at La Jolla in southern California. It is believed that this clinic will serve a distinct need in northern California.

Southern Pacific General Hospital Meeting.—The regular monthly staff meeting of the Southern Pacific General Hospital was held on Wednesday, January 9, at 8:15 p. m. The staff and interns presented the essentials of the clinical and pathological data of the fatalities for December. A statistical report of the roentgenological department for 1928 was submitted by Dr. L. B. Crow. A pathological and statistical review of autopsies and a general review of the pathological department for 1928 was presented by Dr. W. T. Cummins.

Extension Lectures on Mental Hygiene.—A course of fifteen lectures on mental hygiene by Dr. Vaclav H. Podstata, associate clinical professor of psychiatry in the University of California Medical School, will be given at the University Extension Building, 540 Powell Street, beginning January 23 at 7 p. m.

Two units of university credit will be given upon completion of the course, the fee for which is $12. A registration fee of $1 is required for new students.

University of California Experts Plan Brain Tumor Study.—Experts of the University of California Medical College will shortly open a new and intensive study of neurological ailments, with special reference to brain tumors, according to an announcement made recently by the board of regents. The survey is made possible through a gift of $25,000 a year for the next five years.

The donor is Dudley Cates, an insurance official living in Winnetka, Illinois, who was graduated in the class of 1911. The work will be in charge of Dr. H. C. Naffziger, clinical professor of surgery.—*San Francisco Examiner.*

Bailey and Kimball Win First Places in September National Board Examination, Part II.—There were forty-seven candidates who took the examination in Part II in September. Dr. Frederick R. Bailey, Jr., earned the highest number of credits and Dr. Theodore S. Kimball the next highest. Doctor Bailey was graduated from the Johns Hopkins University School of Medicine in 1928, and Doctor Kimball was graduated from the College of Medical Evangelists of Los Angeles in the same year.—*National Board Bulletin.*

Research Work on Pituitary Gland.—For his work in an investigation of the ductless glands, and particularly in his isolation of pituitary hormones, Dr. Oliver Kamm, director of chemical research of Parke, Davis & Company, manufacturing chemists, has been awarded the $1000 prize by the American Association for the Advancement of Science for the "most noteworthy contribution to science presented at the annual meeting."

Some two thousand scientists delivered addresses at this meeting, which was held in New York. The award was announced on January 2 by Dr. Henry Fairfield Osborn, president of the association.

The isolation of two hormones from the posterior lobe of the pituitary gland, as revealed by Doctor Kamm, is held by chemical scientists to be equal in importance to the isolation of insulin and the discovery of adrenalin.

Postgraduate Courses for Doctors and Children's Doctors re "The Improvements in Infantile Therapeutics."—During the period between April 10 and April 20, 1929, an extensive postgraduate course: "Improvements in Infantile Therapeutics" is being held for doctors and children's doctors in Düsseldorf in the children's clinic of the Medical Academy in Düsseldorf, Moorenstr. 5, by the Central Committee for Medical Postgraduate Work in Prussia and the Association for the Care of Suckling Babies and Welfare Work in the administrative district of Düsseldorf.

The first course of this kind, which took place last year, was a great success, as the hearers are given a complete survey of all the improvements in the whole domain of infantile therapeutics. At the same time the possibility of studying modern examination methods is given in special courses.

The detailed program can be obtained in the secretariat of the postgraduate course: "Improvements in Infantile Therapeutics," in Düsseldorf, Oststrasse 15.

Dinner Meeting of American College of Physicians Members.—On Friday night, January 18, fifty of the southern California members of the American College of Physicians met at dinner at the California Club, Los Angeles. Dr. Egerton Crispin of the Board of Governors spoke on the "Purposes and Ideals of the College." Dr. F. M. Pottenger of the Board of Regents discussed "The Future Plans of the College." The address of the evening on "Recent Advances in Our Knowledge of the Liver" was given by Dr. Leonard Rowntree, Director of Medical Service, Mayo Clinic, and Professor of Medicine, University of Minnesota.

Stanford University Medical School.—Dr. T. Addis, professor of medicine in the Stanford University School of Medicine, is absent on leave for one year acting as guest physician in the Hospital of the Rockefeller Institute for Medical Research.

Dr. Charles Gurchot, Ph. D., Cornell, and Miss Frances Watson, A. B., Stanford, have been appointed research assistants in the department of pharmacology and the division of neurology, Stanford University School of Medicine, assisting in researches on syphilis supported by a grant from the Committee on Research in Syphilis to Dr. P. J. Hanzlik and H. G. Mehrtens.

Among the student body of the Stanford University School of Medicine there are enrolled five men with the degree of Doctor of Philosophy, the institutions represented being Cornell, California, Johns Hopkins, and Stanford.

Gift to Medical School of the University of Southern California.—A gift of $100,000 from Dr. and Mrs. Wilbur W. Beckett to the endowment fund of the School of Medicine of the University of Southern California was announced recently by Harry J. Bauer, chairman of the Semi-Centennial Commission of the University.

Doctor Beckett has long been engaged in the practice of medicine in Los Angeles and active in the development of the city's medical welfare. He is vice-president and medical director of the Pacific Mutual Life Insurance Company, and a director of the Citizens Trust and Savings Bank, the Pioneer Security Company, and numerous other southern California corporations.

In transmitting his gift to the university, Doctor Beckett expressed the opinion that the provision of adequate medical training was the chief educational need of southern California.

"It is a great pleasure to me to place at the disposal of the University of Southern California funds that will be used for its medical school," Doctor Beckett stated. "The advancement of medical education is a worthy end under any circumstances, but it is particularly gratifying to be able to help in making provision for such education here in southern California, where adequate medical training is recognized as the chief educational need of the community.

"Such a school will raise the standards of the medical profession locally. It will provide opportunities for research among our physicians. It will make it unnecessary for our young people to leave Los Angeles to obtain a medical education. Such a medical center will provide the means that Los Angeles needs for promoting the science of medicine and for disseminating that science to the profession as well as to the laity. And it is most fortunate that it is the University of Southern California that is sponsoring the teaching of medicine, since it makes it possible for the new medical school, like other outstanding medical schools throughout the country, to have at its disposal the facilities of a great university.

"To me there is no worthier object for gifts than the building and endowing of a school that is to train our young men and women to heal our sick and to apply themselves to the health problems of the community. And it is my belief that a gift to the school now is worth more than it would be at any future time. It is a source of keen satisfaction to know that my gift will make it possible for me to continue to serve my profession and my community on down through the years to come."

The School of Medicine of the University of Southern California was reopened last September under the direction of Dean William Dean Cutter, former dean of the Postgraduate Medical School of New York. During the present year the first year of medicine is being taught, and each year hereafter an additional year of work will be added until in 1931 a full four-year course will be available.

American Association for the Study of Goiter.—The next meeting of the American Association for the Study of Goiter will be held at Dayton, Ohio, on March 25, 26, and 27.

The association was formed a number of years ago with the primary object of bringing together each year men who will present the best that has been thought, said, and done in the study of goiter and its associated problems. It aims to establish a forum where all subjects pertaining to goiter may be presented and fully discussed.

Members of state and provincial medical societies are eligible and cordially invited to participate as attending members at the Dayton meeting.

Golf Tournament, Southern California Medical Golf Association.—Ninety-five members of the Southern California Medical Golf Association played the monthly tournament at the Potrero Country Club, Wednesday, January 23. Winners in Class A were: L. D. Cheney, low gross; and John W. Shuman, low net. One hundred and forty members and guests attended the semidry banquet at 6:30 p. m., donated by Doctors E. J. Cook and A. W. Moore, in honor of Clarence W. Pierce, who retired after thirty years' active practice of medicine. Dr. J. Lee Hagadorn was toastmaster. Among the guests and speakers were: Doctors Allen B. Kanavel of Chicago; E. Pallette, president Los Angeles County Medical Association; W. W. Beckett, William M. Kiger, E. J. Cook, and A. W. Moore. The February tournament will be played at the Fox Hills Country Club.

Scholarships at University of California.—During the fiscal year 1927-28, students at the University of California were awarded scholarships, fellowships, and prizes totaling $101,954.04. These funds came chiefly from private sources, approximately $15,000 being the amount furnished by the state or by the university.

The University and Public Health.—Universities are not usually considered as public health centers. The public seldom hears of the work done by the University of California in this field through its free clinics maintained by the medical school. Yet a recent report from just one of these clinics shows that during the past ten years almost one thousand people of the state without funds have been treated for eye conditions which would certainly have resulted in blindness were such gratuitous care not available. In addition the lives of several thousand others were made more comfortable by suitable glasses to correct less serious infirmities.

This work is done by the faculty of the medical school, all graduate physicians, many of them with large practices on the outside, who offer their services to the state through the university for this clinical work gratuitously. If the time thus given in the relief of these thousands of people were computed at the extremely low figure of $5 an hour, it would have totaled $75,000.

The university carries on this work both as a service to the state and as a method enabling its students to watch practiced physicians at work. Most of it is done at the main clinic at the university medical school, but some is done in the San Francisco City Hospital, where the university maintains service.

In the city hospital three hundred cases of eye inflammation, due to gonorrhea in the newborn, were treated; at the university there were 105 cases of glaucoma, 10 cases of trachoma, 90 cases of inflammation of the cornea, 110 cases of inflammation of the iris, 325 cataracts removed, and 30 cases of congenital cataract. Quite obviously there is more to a large university than a library of books and an army of students.—*U. C. Clip Sheet.*

University of California Starts Radio Program Over RCA.—Something new in academic instruction has started at the University of California. At the suggestion of Sam Hume, Director of Avocational Activities of the State Department of Education, and of the Radio Corporation of America, the university is cooperating in the establishment of what might be called a "University of the Air."

Once each week some member of the faculty of the University of California, or other prominent educator, will speak on some popular phase of science or culture during a part of the RCA hour, from 8 to 8:15 p. m. on Friday. This program will be broadcast simultaneously by KHQ, Spokane; KOMO, Seattle; KGW, Portland; KGO, Oakland; KPO, San Francisco; and KFI, Los Angeles.

The first men to participate in this program from the university will be Professor T. H. Goodspeed of the botany department, and Professor Robert H. Lowie of the department of anthropology. Professor Goodspeed recently achieved national recognition as a result of his work on the effect of the x-ray upon the germ cells of plants. Simultaneously with the work of Muller of Texas, on fruit flies, he found that the x-ray had such a profound effect on the germ cells of tobacco plants, that new species were formed having greatly different characteristics than their parent plants. Professor Lowie is one of the leading ethnologists of the nation, having studied American Indians for a score of years.

Professor Lowie will speak over the air on Friday, February 1.—*U. C. Clip Sheet.*

The New Dante Sanatorium.—On January 10 the formal opening of the new Dante Sanatorium occurred and the buildings were opened for the inspection of the public.

The new hospital is an institution of which the Italian Hospital Association and E. A. Trenkle, the superintendent, can well be proud.

The original building contained fifty beds and the new building adds to this number fifty-three beds in single rooms in the Broadway wing, and forty-eight beds in single and two-bed rooms in the Vallejo Street wing. These rooms are furnished in the most comfortable and tasteful manner, and huge sun parlors have been provided in the roof of the new wings for the use of convalescing patients.

Five new operating rooms have been added, equipped with the most up-to-date apparatus for the safety of patients and the convenience of the surgeons.

The top floor of the Broadway wing will be devoted entirely to maternity patients, and a thoroughly modern delivery room with all its accessories is placed on this floor. Each room has an individual glass-enclosed nursery for the baby.

All the laundering for the hospital and all of the baking (except bread) will be done in the hospital's own plants, and the power and lighting arrangements are so made that failures of current can be immediately compensated by the use of other circuits.

Nothing has been omitted to make the hospital most comfortable and efficient, and the Vallejo Street wing is designed to furnish accommodations to patients who have heretofore been unable to meet the previous schedule of prices.

Cancer Institute, San Francisco County Hospital.—Work will begin shortly on the new Cancer Institute building to be erected near the San Francisco Hospital out of the recent health bond issue. The new building will cost about $400,000.

International Hospital Congress.—The International Hospital Congress will assemble at Atlantic City, New Jersey, on the morning of June 13. This Congress will be immediately followed by the annual convention of the American Hospital Association.

In connection with this first congress of its kind there will be a very valuable exhibit of plans and models of modern hospitals, of various types of hospital equipment and supplies, and of statistical data relative to the care of the sick throughout the world.

The purpose of the congress is to bring together all those interested in hospital administration, hospital construction and organization, and to afford by personal contacts and exchange of ideas a better understanding of hospital needs and problems as well as hospital progress throughout the world.

CURRENT EVENTS

In view of the special interest that is being taken in certain of the legislative measures it has seemed desirable to print in this issue, for the information of members of the California Medical Association, the preliminary drafts of Assembly Bill No. 739, which provides for a department of professional and vocational standards, and Assembly Bill No. 488, which provides for a state medical library.

Members of the component county societies and members of the California Medical Association who are interested in these matters, and who have suggestions to offer thereon, should feel free to write to Doctor Pope, secretary of the state association, or to Dr. Harlan Shoemaker of Los Angeles, who is chairman of the legislative committee of the California Medical Association. The state medical library was discussed in the November issue of CALIFORNIA AND WESTERN MEDICINE (page 343). The vocational standards measure was referred to in the December and January numbers.

Assembly Bill No. 488.—Introduced by Mr. Patterson, January 16, 1929, adds Section 6a to the Medical Practice Act.

Section *6a.* The board shall establish and maintain a medical library as a unit of and integral part of the State Library in the State Capitol in the city of Sacramento, to be known as the State Medical Library, and the board shall be and is hereby authorized, empowered, and directed to purchase suitable and necessary shelving and cases to contain the books therefor, and shall provide for the proper cataloging and care of said library. The board shall purchase scientific medical books and journals to comprise said library with the advice and approval of the president of the State Board of Health and the dean of the Medical School of the University of California. All moneys now in the Board of Medical Examiners' contingent fund in excess of the sum of $100,000 are hereby appropriated for the aforesaid purposes; and the board is hereby authorized, empowered, and directed to expend for the purchase of scientific medical books and journals as herein provided for the said State Medical Library all moneys hereafter coming into the said contingent fund in excess of and when said fund has a credit to its account of $100,000.

Assembly Bill No. 739.—Relating to the department of professional and vocational standards, introduced by Mr. Feigenbaum and referred to the Committee on Governmental Efficiency and Economy.

An act to add a new article to chapter three of title one of part three of the Political Code, to be numbered title two *m*, embracing sections 376 to 376*n* inclusive, relating to a department of professional and vocational standards.

The people of the State of California do enact as follows:

Section 1. The Political Code is hereby amended by adding a new article to chapter three of title one of part three thereof, to be numbered article two *m* embracing sections 376 to 376*n* and to read as follows:

ARTICLE II*m*

DEPARTMENT OF PROFESSIONAL AND VOCATIONAL STANDARDS

376. A department of the government of the State of California to be known as the department of professional and vocational standards is hereby created. The department shall be conducted under the control of an executive officer to be known as the director of professional and vocational standards, which office is hereby created.

376*a*. The director shall be appointed by and shall hold office at the pleasure of the governor and shall receive a salary of six thousand dollars per annum. He shall execute and furnish to the State of California, an official bond in the sum of twenty-five thousand dollars conditioned upon the faithful performance of his duties; shall be a civil executive officer and shall be entitled to necessary traveling expenses.

376*b*. The department of professional and vocational standards is divided into at least two divisions, to be known as division number one and division number two. Division number one shall embrace the board of medical examiners, board of dental examiners and the board of pharmacy. Division number two shall embrace the board of accountancy, board of architecture—northern district, board of architecture—southern district, board of embalmers, board of barber examiners, board of cosmetology, bureau of registration of nurses of board of health, board of optometry, and the board of veterinary medical examiners. The director of the department, with the approval of the governor, except as otherwise provided by law, shall have power to create such additional divisions and to move such boards from one division to another as may be necessary for the administration of the affairs of the department; provided, that no reclassification applying to division number one shall be made except by express provision of the legislature.

376*c*. For the purpose of administration, the registration and clerical work of the department shall be forthwith organized by the director, subject to the approval of the governor, in such manner as he shall deem necessary properly to segregate and conduct the work of the department.

376*d*. The director of the department of professional and vocational standards is hereby vested with full power to investigate the work of the several boards in his department, obtaining a copy of all records and at all times full and complete data in all official matters in possession of said boards, their members, officers, or employees.

376*e*. For the purposes of this article, the terms, "board of medical examiners," "board of dental examiners," "board of pharmacy," "board of veterinary medical examiners," "board of optometry," "board of accountancy," "board of architecture—northern district," "board of architecture—southern district," "detective license department of board of prison directors," "board of embalmers," "board of barber examiners," "board of cosmetology," "registration of nurses of board of health," and "board of pilot commissioners," shall be construed to mean and refer to the department of professional and vocational standards and the appropriate officers thereof.

376*f*. The positions of all deputies, officers and employees of the department of professional and vocational standards are hereby retained, except when in the judgment of the director, as a matter of economy and efficiency, same may be abolished and have no further legal existence; provided, however, that the statutes and laws under which they exist, and all laws prescribing their duties, powers, purposes, responsibilities and jurisdiction, together with all lawful rules and regulations, established thereunder, are hereby expressly continued in force.

376*g*. The department of professional and vocational standards shall be in possession and control of all records, books, papers, offices, equipment, supplies, funds, appropriations, land and other property—real or personal—now or hereafter held for the benefit or use of all of said bodies, offices or officers mentioned in this article and the title to all property now or hereafter held by any of said bodies, offices or officers for the use and benefit of the state, is hereby transferred to the State of California to be held in possession of the said department.

376*h*. The members of each of the boards herein mentioned, in office at the date this act takes effect, shall continue in office for the length of the term for which they were respectively appointed, or until their successors are appointed and qualified. Nothing in this act shall be construed as abolishing any of the boards herein mentioned. Each of the boards herein mentioned shall exist as a separate unit, retain the functions of setting standards, holding meetings and

setting dates thereof, preparing and conducting examinations, passing upon applicants, conducting investigations of violations of laws under their jurisdictions, issuing citations and holding hearings for the revocation of licenses, in so far as these powers are now or may hereafter be imposed upon each respective board. The decisions of any of the boards comprising the department of professional and vocational standards herein mentioned with respect to the setting of standards, conducting examinations, passing of candidates, and revocations of licenses, shall not be subject to review by the director, but all such decisions shall be final within the limits now provided by existing statutes, or as the same may be amended from time to time.

376i. Each board may elect a secretary, who may or may not be a member of said board, and may fix his salary, with the approval of the director of finance. The secretary so elected shall be entitled to traveling and other expenses necessary in the performance of his duties.

376j. In accordance with civil service regulations the director shall have full authority to employ and fix the compensation of all employees necessary to properly administer the work of division number two of the department and the work of each board of said division number two. In accordance with civil service regulations each board in division number one shall have full authority to employ and fix the compensation of all employees necessary to properly administer the work of each said board.

Each board in division number one shall have authority, with the approval of the director of finance, to employ such investigators and attorneys as are necessary to properly investigate and prosecute all violations of any law, the enforcement of which is committed to the said board in said division of said department, and such investigators and attorneys shall be exempt from the provisions of the civil service law.

The director shall have authority, with the approval of the director of finance, to employ such investigators and attorneys as are necessary to properly investigate and prosecute all violations of any law in division number two, the enforcement of which is charged to the department or to any board in said division of said department and such investigators and attorneys shall be exempt from the provisions of the civil service law.

376k. All moneys, collected by the department for and in behalf of the activities of each respective board mentioned herein, shall be remitted to the state treasury in accordance with law, for credit to the respective funds now in existence.

376l. A charge for the estimated administration expenses of the department, not to exceed the available balance in any appropriation for any one fiscal year, may be levied in advance on a pro rata share against any of the funds of any of the boards included in this act, at the discretion of the director and with the approval of the department of finance. Upon proper presentation of claims by the department to the state controller, the state controller shall draw his warrant or warrants against any of the funds of any one of the boards herein mentioned to cover such estimated administrative expenses of the department; provided, that the fund of one board shall not be used to pay the general expenses of any other board. The amount of such warrant or warrants shall be remitted to the state treasurer by the department for credit to the professional and vocational standards' fund, which fund is hereby created, and out of which fund the department shall pay all of the necessary administration expenses of the department.

376m. A sum not to exceed one per cent of the total amount appropriated for all of the boards herein mentioned may be withdrawn from the professional and vocational standards' fund without at the time furnishing vouchers and itemized statements. The sum so drawn shall be issued as a revolving fund where cash advances are necessary, and at the close of each biennium, or at any other time, upon demand of the department of finance, must be accounted for and substantiated by vouchers and itemized statements submitted to and audited by the state controller.

376n. Upon the request of any of the professional or vocational standards board created by an initiative act, the director of the department of professional and vocational standards may act as the executive officer of such board and take over the duties of said board under the same conditions and in the same manner as provided for in this act for other boards of like character; provided, that said boards created by initiative amendment shall pay a proportionate cost of the administration of the department on the same basis as charged other boards included within this act.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume II, No. 2, February, 1904

From some editorial notes:

. . . Principles of Ethics.—A principle of right versus money; that is exactly the question which the Publication Committee and the Board of Trustees have had to face. We started your journal with the plainly expressed policy to adhere to the letter of the ethical law in the advertising published in the journal. . . .

. . . Ethics and Advertising.—Note the language of the principle of ethics quoted: "To dispense or promote the use of secret medicines." That is the phrase which brings the matter home to the Publication Committee, to the Trustees, and to the House of Delegates. If we allow advertisers to present to the attention of our members and readers statements relative to "secret medicines," are we not guilty of a violation of this ethical principle? Are we not aiding in "promoting the use of" these things? It is of no avail to reply that somebody else, or some other journal does these things. It would be as sensible to defend the practice of murder or of rape by alleging that other people do them. . . .

. . . Right or Dollars?—Will you stand for the right and a possible deficit which you will have to provide means for meeting—for it costs money to publish the sort of journal you are getting—or will you choose to take the dollars and ignore the principle you have subscribed to—to be bought outright; to be subsidized; to depart from that which you have, in theory, declared to be right? . . .

. . . Internist—A New One.—It has often been said that the modern surgeon has no nerve; this may be largely true. At any rate, there is a good deal of collateral evidence to substantiate a claim to nerve, and not the least of this evidence is to be found in the treatment of English. . . .

. . . But now they have handed one to the physician that is a little—just a little—too much for patience to endure. They have branded him an "internist"—whatever that anomaly may be—and he does not seem to object! . . .

From an article on "Traumatic Neuroses" by H. G. Brainerd, M. D., Los Angeles:

. . . Ever since Erickson promulgated his theory that spinal concussion was the cause of the nervous phenomena frequently observed after traumatism, such as blows on the head or spine and such injuries as are received in runaway accidents and railway collisions, when by reason of the velocity the concussion is great, there has been a great diversity of opinion among the medical profession in regard to the etiology of these symptoms. . . .

. . . The different views of the condition give rise to the following terms: traumatic neurasthenia, trau-

* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

matic hysteria, traumatic neuroses, traumatic psychoses, "railway spine," Erickson's disease. . . .

From an article on "Occipito-Posterior Positions" by George L. Cole, M. D., Los Angeles:

. . . During a somewhat limited practice in obstetrics, derived from a general practice extending over a period of something like sixteen years, there perhaps has been no particular line of cases that has given me so much annoyance as those which have presentcd themselves in occipito-posterior position. . . .

From an article on "Grawitz Tumor of Kidney" by E. O. Jellinek, M. D., San Francisco:

. . . If I take the liberty to report to you two cases of *strumae lipomatodes aberratae renis,* or Grawitz's tumors, I do so because these tumors are little known to the practicing physician in spite of their frequent occurrence, and also because they are of great importance for therapeutics and prognosis. . . .

From an article by Dr. Allport, Chicago, Illinois:

There are in the United States over fifteen million school children, ten million of whom are suffering from some eye, ear, nose or throat defect, which if relieved will place them in a much better condition to undergo life's struggles, and to achieve a measurable degree of that success which produces self-respecting citizenship, and relieves the state, county, or town of burdensome pauperism. No flight of fancy is required to transform the defective child into the nonsupporting "ne'er-do-well," the wandering and menacing tramp, or the idle, pleasure-seeking, and misery-finding prostitute. . . .

From an article on "Vasectomy—An Argument for Its Therapeutic Use in Certain Mental Diseases and as a Means of Diminishing Crime and the Number of Criminals" by C. N. Ellinwood, M. D., San Francisco.

. . . My purpose in asking the attention of this society of medical practitioners is to submit the question of a possibility of adopting the therapeutic procedure of vasectomy for the relief of a class of sufferers (imbeciles, maniacs, and criminals), who, by heredity or environment, have acquired morbid sexual perversion of a chronic and dangerous kind. . . .

From reports of county medical societies:

Alameda County.—The Alameda County Medical Association held its regular meeting Tuesday evening, January 12, Dr. O. D. Hamlin in the chair. Forty members were present. Doctor Beckwith read a paper entitled "The Pathology and Treatment of Lobar Pneumonia." . . .

San Benito County (Organized January 22, 1904).—A meeting of the physicians of San Benito County was called by the trustees, through Dr. Philip Mills Jones, for the purpose of organizing a county medical society, on the night of January 22. In response to the invitations sent out, Doctors Nash, O'Bannon, O'Donnell, Porter, and Tebbetts attended the meeting. . . .

. . . Thus another county society is added to the list, and the year 1904 started well on its way. The trustees hope that it will see quite as energetic organization as has the past year. The newest society, while it is not large in numbers, is strong in that it represents all but one of the eligible physicians who are in active practice. . . .

San Francisco County.—The regular monthly meeting of the San Francisco County Medical Society was held on the evening of January 12, President J. Rosenstirn in the chair. . . .

. . . Dr. Philip M. Jones: I had the honor to give the first demonstration of x-rays before this society. Some of the statements made by me at that time, and subsequently, were received in a spirit of mirth, yet they have all been accepted long since. . . .

. . . Doctor Carpenter: I will admit that I asked Doctor Jones to make an exposure. I thought I had renal calculus. . . .

. . . Dr. J. Henry Barbat: I fell heir to Doctor Jones' lupus case, and it might be interesting to note that this patient with lupus has to have a treatment every little while to destroy new foci. . . .

. . . Doctor Himmelsbach: I think Doctor Finsen got his idea, principally, from a professor in the medical college at Copenhagen in 1853, who discovered that a number of persons were not pitted by smallpox when not exposed to light. . . .

. . . Dr. D'Arcy Power: The limits, in the application of this treatment, have recently been dwelt upon by Doctor Bevin of Chicago. Some of his didactics are worth consideration. . . .

. . . Dr. Henry Gibbons announced to the society that as the trustees had not qualified in the prescribed time under the constitution, the offices were vacant. On motion the trustees chosen at the annual election were again placed in nomination and duly elected.

Dr. W. I. Terry, librarian, reported that more commodious quarters had been secured on the floor above the rooms at present occupied. The library committee was empowered to purchase carpets, etc., for the new rooms.

A communication was read from the Merchants' Association, thanking the society for its recent action with reference to the site for the new City and County Hospital. . . .

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. Pinkham, M. D.
Secretary of the Board

News Items, February, 1929

Renewing its declaration of war on "quacks" and physicians who traffic in narcotic drugs, the State Board of Medical Examiners today announced the legislative program it will sponsor next month. The program will consist of five bills which are to be introduced in the legislature by Senator John J. Crowley of San Francisco. Here is the substance of the medical board's program: Provides for revocation of the license of any person convicted of a felony. Provides for revocation of the license of any practitioner convicted of violating the Harrison Narcotic Act or guilty of participation in any arrangement whereby bona fide narcotic charges against him fail to go to trial. Prescribes one year of practical hospital work in qualifying medical students to take the state examinations for physicians and surgeons. Increases educational course for chiropodists from two to three years, effective in 1930. Provides additional facilities for speedy qualification in California of bona fide United States Army, Navy, and Public Health Service physicians. Provides for revocation of the license of any practitioner who uses the suffixes "M. D." "D. O.," or "D. S. C." without having been granted such degrees after full courses of study. Makes it a misdemeanor for any person not holding a certificate under the Medical Practice Act to use the titles "Chiropodist," "Orthopedist," "Orthopedic Specialist," "Foot Specialist," "Osteologist," or "Doctor of Osteology." Makes it a misdemeanor for any person other than a state medical board member or agent to display badges or insignia claiming to be an administrative official or investigator under the Medical Practice Act.—*San Francisco Examiner,* December 28, 1928.

Bills introduced in the present session of the legislature of interest to the medical profession are as follows: By the Board of Medical Examiners—Senate Bills 106, 213, 214, 215, 216, 217, 523. Other bills introduced are: Assembly Bill 488, taking any excess of $100,000 from the Board of Medical Examiners for the establishing of a medical library in the state library; Assembly Bill 628, amending the Medical Practice Act, which we understand is introduced on behalf of the osteopathic profession; Assembly Bill 666 creating a basis science board; Assembly Bill 688, providing for recognition of the National Board of Medical Examiners; Assembly Bill 739, creating a department of vocational and occupational standards; Senate Bill

258, amending the Cosmetology Act; Senate Bill 337, amending the Narcotic Rehabilitation Act.

Recognition of chiropractors by the Industrial Accident Commission would be required by a bill submitted in the upper house by Senator Thomas A. Maloney of San Francisco. The intent of the measure, according to Maloney, is to permit the collection of workmen's compensation insurance by injured employees who receive treatment by chiropractors. The Industrial Accident Commission does not, under the present statutes, recognize a chiropractor's certificate of injury and treatment.—*Oakland Tribune,* January 12, 1929.

Chiropractors . . . cannot be recognized as "licensed physicians," according to an opinion rendered by Attorney-General U. S. Webb at the request of Insurance Commissioner Charles R. Detrick. The Insurance Commissioner requested the Attorney-General to clarify this feature because of the number of accident insurance policies which provide that in case of disability the insured under the policy must be visited by a regularly licensed physician.—*San Francisco Chronicle,* January 14, 1929.

Rumblings of impending sensational exposures in connection with the granting of California chiropractic licenses to individuals licensed in the State of Nevada were heard today in state chiropractic circles. Charges of "conspiracy" were made in the statement issued by Dr. S. J. Howell, secretary of the Board of Chiropractic Examiners, upon his return from Los Angeles, where he made a thorough investigation of the entire situation. . . . The alleged conspiracy involves the granting of licenses to practice chiropractic in the State of California through reciprocity agreement with the State of Nevada.—*Sacramento Bee,* December 19, 1928.

The following licentiates of the Board of Medical Examiners have been called before the board at the meeting which opens in Los Angeles, February 4, to show cause why their licenses to practice in California should not be revoked:

Bennett C. Anderson, M. D., Barstow, aiding and abetting an unlicensed practitioner.

Frank Burleigh, M. D., Burbank, conviction of manslaughter.

Maria Caron, Midwife, Los Angeles, alleged illegal operation.

Harold G. Johnson, D. C., drugless practitioner, Los Angeles, use of fictitious name.

Samuel G. Long, M. D., Bakersfield, alleged practice under a fictitious name.

Eugene Rinaldo, M. D., Los Angeles, alleged fraudulent credentials. Continued from the October, 1928 meeting.

Dr. Frank L. Burleigh, Burbank physician, convicted of manslaughter in connection with the shooting of Jack Stachel, a janitor, yesterday dismissed his appeal in Judge Aggeler's court and it was reported he will be taken to San Quentin Friday. Doctor Burleigh is under sentence of from one to ten years. He pleaded self defense (*Los Angeles Times,* December 18, 1928). (Previous entries, September, 1926 and January, 1929.)

The number of so-called diploma mills which offer, for a consideration, a bogus medical degree of any kind is near the vanishing point, the State Board of Medical Examiners told Governor Young in its annual report submitted today.—*San Francisco News,* January 12, 1929.

Citations against sixteen California chiropractors, three of them San Joaquin Valley practitioners, charged with fraud and deception in the obtaining of chiropractor licenses, were issued today by the State Board of Chiropractic Examiners, of which Dr. C. L. Fishbeck of Fresno is a member. Other citations are pending. They will appear before the state board in Los Angeles on January 15 to show cause why their licenses should not be revoked.—*Fresno Bee,* December 18, 1928.

Operation of an international "diploma mill" in San Francisco was stopped today following the arrest Friday of Hamilton McClarty, a druggist, 4411 Balboa Street. He was accused by J. W. Davidson, special agent of the State Board of Medical Examiners, of making a false affidavit in an effort to be admitted to take the state examination for physician and surgeon, a felony. According to Davidson, credentials, certificates, and references of most any kind desired were turned out while you wait.—*San Francisco News,* January 5, 1929.

J. J. Fabian, mentioned in "News Items" of December, 1928, and January, 1929, appears to be an individual correctly named Harry Fabian, who recently delivered to the office of the Board of Medical Examiners a Vanderbilt University medical diploma bearing the name of Jacob Jacques Fabian, long since dead, said diploma apparently having been in the possession of Harry Fabian for several years, but no explanation is offered as to how Harry Fabian came into possession of this diploma.

Charged with failing to use the word "chiropractor" or the letters "D. C." after his name on his office door, Dr. E. C. Fortin yesterday came before Municipal Judge Caryl Sheldon for trial. The trial was continued until this morning.—*Los Angeles Daily Illustrated News,* December 19, 1928.

George D. Gillespie, chiropractor, with offices at 988 Market Street, must face the State Board of Chiropractic Examiners in Los Angeles Thursday on charges of indulging in "liquor" to such an extent as to interfere with his practice, whether he will or not, according to a ruling handed down yesterday by Superior Judge Cabaniss. Gillespie appeared yesterday to obtain an injunction against the board conducting the hearing into his alleged imbibing, declaring the act under which the board moves in such matters is invalid because it does not specify exactly what are narcotics and ardent spirits.—*San Francisco Chronicle,* January 15, 1929.

W. D. Hoque, 31, was arrested at his home, 133 Virginia Avenue, late yesterday afternoon on a charge of practicing medicine without a license or credentials, a misdemeanor. . . . According to the special agents, Hoque had a patient in his house whom he was "curing" for a charge of $250. He used a sort of plaster as his cure, they said. . . . A sign on the front of Hoque's place of business at his home in Virginia Avenue reads, "Dr. Hoque, Cancer and Skin Specialist." . . . Hoque even carries a doctor's emblem on his automobile, Davidson declared. . . . Hoque furnished $500 cash and was released at seven o'clock last night.—*Modesto News-Herald,* December 21, 1928.

Augustine Ocompo of Belvedere Gardens drew a sentence of sixty days in the county jail today when he appeared in Police Judge Farrell's court on charges of practicing medicine without a state license and of attempting criminal assault. . . . He entered a plea of guilty to both charges and told the court that he had practiced medicine and performed operations in Mexico, but had never held a permit. (Press dispatch dated Alhambra, January 4, published in the *Los Angeles Times,* January 5, 1929.)

"Dr." H. L. Musick of 701 Camulos Street today was convicted of violating the State Pharmacy Act by a jury in Municipal Judge Sheldon's Court. He was accused of selling small bottles of capsules "guaranteed to cure all ailments" at $1 a package. The "doctor" on the stand testified he sold 7,000,000 packages during the past fourteen years. The jury disagreed on the charge that he violated the State Medical Practice Act.—*Los Angeles Herald,* December 20, 1928.

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HUNGER AND APPETITE*

PRESENT CONCEPTIONS IN REGARD THERETO

By GARNETT CHENEY, M. D.
San Francisco

THE study of hunger and appetite has attracted the attention of scientific investigators almost as far back as we can trace the history of man. As the sensations are universal and primitive, and as their absence may lead to death itself, the question of why we do or do not get hungry has always been one of great interest. This has been a perplexing problem for the physiologists which is by no means cleared up as yet, but the problem for the clinicians has been how to treat disturbances in hunger and appetite, notably the loss of these sensations. As is frequently the case the knowledge of the physiologists has not always correlated with that of the physicians, and methods of therapy which have been popular for ages are not supported by scientific facts. The modern conception of the hunger mechanism and the experimental data substantiating this conception should be sufficiently well known so that the problem presented by the variations of hunger sensations in organic and functional disorders may be treated on a sound basis and with greater efficacy.

DIFFERENTIATIONS BETWEEN HUNGER AND APPETITE

A differentiation has been made between appetite and hunger. Appetite is a desire for food or drink which is a pleasure, which depends on a previous acquaintance with the substance in question, and is therefore psychic. It may occur incidentally just before the usually appointed meal hour, and is nearly always aroused by the taste, sight, or smell of certain foods which have proved particularly palatable to any given individual. Hunger, on the other hand, is an unpleasant sensation which is difficult to describe, and which occurs periodically when the stomach is empty. In its milder forms it is commonly described as a hollow or empty feeling in the epigastrium. It may amount to an actual gnawing pain and be accompanied by headache, weakness, dizziness, and irritability. Actually, the terms "hunger" and "appetite" are frequently used synonymously, the two sensations not being differentiated one from the other.

CAUSES OF HUNGER—EARLIER VIEWPOINTS

What actually causes the feeling of hunger? One hundred and fifty years ago Haller [1] noted that it was initiated and increased by bodily vigor and physical labor of all kinds, and intensified in cold climates, that it was augmented by the presence of intestinal worms and by the patency of the pylorus, by certain weak acids, and by other imperfectly understood conditions. These were worthy observations for Haller's age, but they were only observations. Experiments were necessary, and the development of our knowledge can be traced through the physiological researches of Beaumont, Pavlow, Cannon, and Carlson. Animal experimentation has proved invaluable, but in Beaumont's Alexis St. Martin and Carlson's Mr. Fred Ulcek we have ideally prepared human beings given us by nature. The story of the first is one of the classics of medicine, while the latter cheerfully served as the subject of countless experiments. Ulcek had a complete closure of the esophagus of twenty years' standing following the accidental ingestion of caustic soda, and a permanent gastric fistula containing a rubber tube which he kept corked except when feeding. Small tubes, balloons, and electric lights could be introduced into the stomach even while he was asleep.

GENESIS OF HUNGER—THREE THEORIES

There are three main theories to explain the genesis of hunger and appetite:

1. That the origin is peripheral and due to stimulation of sensory nerves carrying impulses to the brain. The stimulus may arise in the wall of the stomach itself being instigated mechanically, chemically, by inherent contractions, or possibly other means, or by the stimulation of afferent nerves due to chemical changes in the blood.

2. Hunger is central in origin. There is a hunger center in the brain which initiates the sensation, as it is known that hunger is felt when the stomach is excised, when the stomach is partly filled, and that it is satisfied by rectal feeding.

3. Hunger has been considered a general sensation produced directly by stimulation of the hunger center by alterations in the blood, and indirectly by nerve impulses from the various organs of the body.

A final chapter is yet to be written, but many advances have been made in the last quarter-century which contribute materially to our understanding of the physiological processes involved. Probably the most important of these was the proof by Cannon [2] in 1912 that hunger parallels the contractions of the normal empty stomach. These contractions begin just as the demand for food becomes perceptible, increase with the strength of the contractions, and disappear when

* Read before the Hewlett Club, San Francisco, September 11, 1928.

the contractions cease. In 1916 Carlson[3] published a book on the control of hunger in which he gives a résumé of the then existing knowledge of the subject and presents numerous highly interesting experiments of his own, both on animals and man. Nothing has been written since which gives such a comprehensive review.

STOMACH MOVEMENTS

Physiologists have used an ingenious method to record the movements of the stomach. A rubber balloon on the end of a tube is swallowed. When inflated this balloon is approximately the size of the stomach. The tube is connected with a pen recording on a kymograph drum. Movements of the stomach will change the pressure within the balloon, and these changes are transmitted to the pen which traces them graphically. Carlson improved on this method by having the subject of the experiment swallow two balloons, one within the other, the outer surface of the inner being coated with an opaque material. On inflation the contraction of the stomach could be observed under the fluoroscope. Various other methods have been employed in the endeavor to sift the facts from the theories, so that today there are certain positive findings which have been determined by studies of the stomach under both normal and experimental physiological conditions in animals and man.

The normal resting stomach maintains a constant muscle tonus rhythm of a uniform rate of about twenty seconds. When empty it exhibits periods of powerful contractions and periods of relative quiescence. The general conception is that these peristaltic waves are initiated in the fundus and spread through the stomach to the pylorus. Recently Martin and Rogers[4] have studied these movements by series of x-ray pictures of the stomach with a single balloon in the lumen which will cast a shadow on the films much like a gas bubble in the intestine. They concluded that the primary or essential element in hunger contractions appeared to be a complete circular constriction in the lower half of the stomach and could not make out any rhythmic changes in the fundus. Wherever the origin, the active period usually lasts thirty to forty-five minutes. It begins with feeble contractions several minutes apart and progresses to more frequent longer ones, which usually gradually diminish again. However, the strong, rapid ones may increase until a state of gastric tetany is reached lasting two to three minutes. The sensation of hunger varies in intensity parallel to the contractions, and when tetany is present the hunger pain is constant and severe. Similar contractions occur during digestion which may gradually pass over into hunger contractions. It is agreed that these digestive contractions are primarily at the pyloric end of the stomach.

GASTRIC SENSIBILITY

The degree of sensibility of the gastric mucosa has long been a subject of controversy and has considerable bearing on appetite. This is particularly important in its relationship to rational therapeutics. Many older authorities thought the viscerae were insensitive to pain. This erroneous view was based in part on observation made while patients were under the influence of local anesthesia. If it had proved correct, hunger pains could not be of peripheral origin.

The pain, tactile, thermal and specialized sensations of the stomach have been studied extensively:

1. Pinching the normal gastric mucosa or pricking it with a pin produces no pain. Pain originating here is due to a pathological process, a destructive lesion involving a normal nerve, or perhaps stimuli acting on a hyperexcitable nerve. Presumably, then, hunger pain is not an epicritic sensation, but is due to muscular contraction. Carlson believes that the only physiological pains are those due to the pangs of hunger.

2. He also believes that the normal gastric mucosa does not possess tactile sensibility. He swallowed a large rubber tube by means of which a test-tube brush on the end of piano wire was introduced into the stomach. Moving it about in the cavity produced no sensation. In a case of gastric fistula blunt objects pushed into the lumen produce no sensation.

3. There has been considerable controversy as to temperature sensibility. Heat and cold are quite readily distinguished in the esophagus, but stomach sensibility is only of the protopathic type.

4. The sense of fullness has been shown to be due to gastric distention of a definite degree, a certain amount of muscle tone also being a factor. A patient with pyloric stenosis, causing a dilated, flabby stomach, does not necessarily have this sensation, although several hundred cc. of fluid may be present. The sensations of satiety, nausea, and vomiting are more complex and are not entirely local in origin.

STOMACH INNERVATION

The innervation of the stomach has an important bearing on the functioning of the hunger mechanism. The vagi convey motor fibers from the cerebrum which may also be acted upon by nuclei of the medulla. Section of both nerves in dogs produces a hypotonic stomach. Tonus is present, but lower than normal. Hunger contractions may occur normally, but usually last a shorter time and appear irregularly. Complete section of the splanchnic nerves increases gastric tonus and augments the hunger contractions. Psychic inhibitions (certain strong emotions) which normally cause cessation of the contractions lose this capacity and simply cause diminution. Section of both groups of nerves produces practically a permanent hypotonus in dogs, but the typical hunger contractions do occur. Cannon showed that the movements of digestion in cats were normal after such an operation. The conclusion is that the fundamental initiation of the hunger contractions is inherent in the gastric neuromusculature apparatus and the extrinsic nerves exert a modifying and regulatory control which is not essential primarily. In contradistinction to this,

Hoelzel [5] emphasizes the importance of central factors. He notes that in cases of starvation that typical gastric hunger contractions occur without the sensation of hunger from the third even up to the fortieth day of abstinence from food, that after excessive food intake hunger appears simply as local epigastric sensations, and that in certain chronic diseases untoward gastric symptoms replace the hunger sensations.

EFFECTS OF GASTRIC STIMULANTS

The effects of various stimulants on the gastric mucosa must be considered in any therapeutic procedure, as well as any more remote effects which may reflexly influence the stomach. It has been shown that appetite can be produced directly by a mild stimulation of afferent nerve endings in the mucosa. Water causes a temporary inhibition of gastric tone and of hunger contractions, but ordinarily this direct effect is superseded by the reflex effect from the mouth and esophagus which is of an opposite nature. Acids produce inhibitions in proportion to their strength, and hunger contractions are usually absent in the presence of normal gastric hydrochloric acid values, although the movements of digestion are not interfered with. Alkalis have the same effect as acids, only to a lesser degree, so that weak solutions act much like water. It is commonly thought that alcoholic beverages can initiate the sensation of hunger. However, these stimulants always inhibit gastric tone and hunger contractions even when introduced by mouth. The beneficial effects must be due to a different mode of action on the movements of digestion and to psychic stimulation of the appetite. All these inhibition reflexes are primary local ones, for they occur in dogs following the section of both vagi and splanchnic nerves.

Hunger is controlled to a certain extent by stimuli acting elsewhere than directly on the gastric mucosa. Holding substances in the mouth such as sugar, salt, and weak acids, chewing indifferent substances, chewing agreeable foods, and swallowing, all inhibit the tone and contractions in the fasting stomach. This is not due to the psychic secretion of gastric juice, as it occurs too quickly. The exact mechanism is unknown, but the condition is much less marked in lower animals, which suggests a central factor in man. Chemical and, to a lesser extent, mechanical stimuli of the intestinal mucosa produce a reflex inhibition of gastric hunger contractions and of gastric tonus. This must be an important factor in diseases of the intestinal tract. Smoking, and pressure on the abdomen, as with a tight belt, will also cause inhibition. Violent exercise subsequently augments the hunger contractions. Cold to the skin, as in taking a cold bath, augments hunger and appetite, and gastric tonus and contractions.

There are higher nerve centers influencing the hunger sensation. The afferent impulses to these centers pass up the vagi nerves. The primary hunger center is thought to be the sensory nuclei of the vagi in the medulla, but the thalamus and the midbrain, and the cerebrum also exert their influence. Acephalic infants and decerebrated animals will exhibit a normal hunger behavior except for the intelligent search for food. Actions denoting hunger are entirely lost in a pigeon which has had its optic thalamus removed, However, the cortical and subcortical factors in man are still largely a mystery.

Changes in blood chemistry and certain drugs will also affect the hunger mechanism. It is stimulated in a normal animal if blood from a starving animal or one with a pancreatic diabetes is transfused into it. No specific hormone has ever been proved, but it seems apparent that degrees of acidosis or hypoglycemia, as may follow physical exertion or extreme cold, will stimulate gastric hunger contractions.

We may conclude, then, to quote Carlson, "The gastric hunger mechanism is ordinarily automatic, or independent of blood changes as well as of central nervous influences, but in the normal individual chemical changes of the blood, as well as nervous impulses from the brain and spinal cord augment or decrease this primary automatism in a way to correlate it with the needs of the organism."

FOOD DESIRES IN VARIOUS DISEASES

The desire for food varies considerably in different members of the human race, but there are certain conditions of disease and disordered function which give a clear-cut increase in, or loss of, this desire. In searching for the causes and for the remedies of such changes the physiological processes involved must not be forgotten. The hunger mechanism may be disturbed by a failure in gastric tonus and contractions which may be intrinsic or reflex, or the disturbance may be in the nerve conduction paths to and from the brain, or the cause may lie in the cerebrum or subcortical centers. A combination of these conditions may exist. Practically in any given pathological state it may not be possible to localize the disturbance correctly, but the more accurate our analysis becomes the more readily will we understand and combat the abnormal state. In reviewing certain diseases affecting hunger and the appetite it is possible to correlate to a certain extent the knowledge brought to us by experimental physiology, with the actual manifestations present in the human being.

There are many diseases characterized by anorexia, infections with fever being the most frequently encountered. *Ordinary colds, tonsillitis, the grippe, influenza,* etc., usually destroy the appetite and may produce an actual aversion for food. This will parallel the amount of fever to a certain degree as has been observed clinically, and has also been put to experimental test. Rupp [6] produced a temporary experimental fever with typhoid vaccine on himself and others. A fever of 100 to 102 degrees produced no definite change in the gastric hunger contractions, but the gastric

sensation was quite different. Instead of exciting hunger the subject experienced headache, nausea, and epigastric distress, the unpleasant sensations so frequently complained of in febrile disturbances. Higher temperatures usually produce atony of the stomach and an absence of hunger contractions; if chills occur these contractions are inevitably absent. It is well to note that here is proof that a local gastric condition is responsible, at least in part, for a commonly recognized clinical condition. Interestingly enough, chronic fevers such as occur in miliary tuberculosis and bacterial endocarditis frequently do not depress hunger.

Several observers have noted the activity of the stomach in cases of *acute and chronic gastritis*. It is usually diminished or lost parallel to the depression of hunger and appetite, and nausea may be present. The loss of the desire for food is often most troublesome in postoperative conditions. This is probably largely a psychic depression, as is the case with many "neurasthenics" and adolescent girls who simply do not exhibit any sensation of hunger. It is curious that hunger contractions occurring in this last group of individuals may be interpreted in the form of pain, which can seem sufficiently severe to take them to a doctor to secure relief.

The so-called "hunger pains" of *peptic ulcer of the stomach and duodenum* have received particular attention, and physiologists do not seem to be altogether in accord with the opinions of the clinicians. The pain sensation in this pathological condition is apparently that of normal hunger, remembering that hunger is a painful sensation, except that it is greatly exaggerated. It is composed of two elements, a persistent soreness or ache, and an intermittent gnawing sensation, which appears with a constancy more specific than almost any other known gastric symptom. It has been conclusively shown that the pains occur when gastric motility is most active and when an excessive amount of highly acid gastric juice collects. Carlson believes that the pain is due to increased tone and contractibility, and points out that this would explain the gnawing or rhythmical character of the pain. The spasm of the pylorus may itself be felt as pain, and it is known that it will disappear when the spasm relaxes. Others believe that the pain is produced by the action of the hydrochloric acid on the ulcer, and Palmer [7] has recently advocated this theory. I have frequently not been able to produce typical ulcer pains in cases of peptic ulcer by introduction of acids of higher concentration than would normally occur, and have seen cases with typical pain when little or no acid was present. Also hunger contractions and the sensation of hunger have been noted as present in cases of achylia which are free from gastro-intestinal complaints, and anorexia may be present in cases of marked hyperacidity. It seems likely that increased tone and hyperperistalsis are the chief factors in the production of peptic ulcer pain.

Occasionally the *gastric crises of tabes dorsalis* include the element of hunger pains, even when the presence of peptic ulcer can be excluded. It is presumed that the sensation may have its origin in the central nervous system, rather than locally, but unfortunately no tracings of gastric motility under such circumstances are available.

Bulimia, or excessive hunger, is a feature of *diabetes mellitus*. Particularly in the advanced stages there seems to be an increased activity of the gastric hunger mechanism comparable to the pancreatic diabetes of dogs. Luckhardt [8] carried out careful observations on two dogs after the pancreas of each had been removed, and found that the increased food consumption ran parallel with the increased vigor of the gastric hunger mechanism. He found a similar state of affairs in a man with advanced diabetes mellitus, which persisted until within a few days of death from coma. With the use of insulin a low blood sugar may be induced, and, just as in hyperglycemia in diabetes, intense hunger is a common complaint. Supplying glucose, which increases the blood sugar, allays the symptom quite promptly. Do these opposite chemical conditions of the blood affect the mechanism in the same way? It is known that the use of insulin in patients with anorexia or in normal individuals will almost constantly stimulate the desire for food. It seems likely that gastric hunger contractions are induced in both. The essential factor is apparently not the blood content, but the loss of availability of sugar to the tissues, whether this is due to an impoverished source (hypoglycemia), or an inability of the tissues to utilize sugar from the blood stream (diabetic hyperglycemia). In normal individuals a high blood sugar inhibits the gastric hunger contractions, and a low one increases tonus and contractions. A blood sugar of 70 to 80 mgs. per 100 cc. will induce the latter effect and lower levels may cause tetany.

The bulimia of *pregnancy* may be considered as a normal physiological condition due to increased metabolism, but the abnormal appetites (parorexia) occasionally encountered would appear to be central in origin. These may vary from an intense desire for highly spiced or acid foods (malacia) to the perverted craving for dirt, clay, or chalk. Such a perversion may occur in children as a bad habit simply because they have acquired a perverted sense of taste. The bulimia of *Graves' disease* may also be considered to be dependent on increased metabolism, much as in exercise. The excessive appetite commonly thought to exist in cases of tapeworm infestation seems to be only a figment of the laity mind, for a series of cases showed no such symptoms.[9]

Bulimia has been described as a feature symptom in certain cases of *brain trauma and tumors of the pineal gland and thalamic region*. Busik and Mitnitsky [10] have recently reviewed this subject in an endeavor to localize the hunger center through actual clinical observation and have described two cases of their own in which bulimia followed brain trauma. The first, a student of twenty-six, fell and struck his head on the bathtub. As soon as he became conscious he began to eat ravenously despite a complete paralysis of the limbs. This continued for four days, and he died on the seventh. Autopsy showed an extensive

hemorrhage in the medulla. The second, a man, had been struck in the back of the neck with an axe two months previously. Following this he suffered from Jacksonian epilepsy, and a perversion of a previously normal appetite. He could only take milk and fruits, and other foods produced nausea and vomiting. After a trephine operation the epilepsy cleared up and he would take all kinds of food. These authors have concluded that slight changes in the blood stream cannot be accounted the cause for hunger without an effect on the hunger center. The cerebral cortex does not play a very important rôle in the hunger mechanism, and various sections of the cortex may play a part in the disturbance. Disturbances in the hunger sensations may occur in lesions of the vagus nuclei or in their connection paths with the midbrain.

Bulimia as it occurs in *psychoneurosis and hysteria* has been more exactly defined. Appetite plays no part, but there is the repeated demand to eat, which may be so marked as to represent a compulsion phenomena. The craving for food is quickly satisfied, distinguishing it from gluttony and polyphagia, but it soon returns and may appear throughout the night, disturbing sleep. This type of hunger manifestation is the antipathy of anorexia nervosa, and exists without any known organic disturbance. Crohn [11] has described two characteristic cases presenting most amazing hunger symptoms, and several similar cases have been recorded. They are most common in women and are not usually amenable to treatment. Whether or not there is an increase in the gastric hunger contractions commensurate with the bulimia has apparently never been demonstrated. Thaysen [12] cites a case of a young man of seventeen years weighing one hundred pounds who could eat one hundred pounds of meat in twenty-four hours, or meals prepared for fifteen workingmen. When put in the hospital under observation he ate four times the normal rations, and would kill dogs and cats to satisfy his hunger. He even stole into the autopsy room and ate the flesh of the cadavers. When demonstrated before a medical class he ate a live cat. He died shortly afterward of perforation of the stomach. This same author describes a case of periodic bulimia which he has studied very carefully, and which has been studied in many clinics. A married man of thirty-three years had suffered since the age of ten years with frequently occurring attacks of extreme hunger. Between periods of ravenous hunger he was quite normal, but during these periods he would gain as much as fifteen pounds in three days, would become pale and puffy about the face and extremities, and would become depressed to the point of considering suicide. He was unable to control his bulimia himself and would escape guards appointed to restrict him. Thyroid therapy was unavailing. His only other abnormality was a homosexual trend, and Thaysen considered the bulimia a compulsion phenomenon of psychic origin. Eccentric and disgusting perversions of appetite are well known in the insane.

DRUG ACTION WHEN HUNGER AND APPETITE ARE DISTURBED

A question of great practical importance is the action of drugs in conditions in which hunger and appetite are disturbed. Under such circumstances the causal disorder may be functional or organic, systemic or localized, acting directly or reflexly. Psychic reactions and existing conditions must be scrutinized carefully before a drug can be pronounced responsible for a therapeutic beneficial effect. The beneficial effects of the bitters in gastric disorders have been recognized since the time of the ancient "medicine man." They are thought to stimulate the flow of gastric juice, to increase hunger and appetite, and to impress the patient favorably. They might act by directly stimulating the stomach, by stimulation of the gustatory and other sensory nerves in the mouth, or possibly by facilitating afferent nerve conduction. Cushny and Carlson have carefully considered these drugs and have shown that their pharmacological actions do not credit their use. Quoting the latter, "We conclude that in therapeutic quantities the bitters, acting in the stomach alone, have no effect on the gastric tonus, or the gastric hunger contractions, or on the parallel sensation of hunger. In greater than therapeutic doses the bitters inhibit the hunger contractions and abolish the hunger sensations, probably by stimulation of the nerve endings in the gastric mucosa. Acting in the mouth alone, the bitters, even in traces, inhibit the hunger contractions and abolish the hunger sensations in direct proportion to the intensity and duration of the stimulation of hunger contractions and hunger sensations." The conclusion is that the beneficial effects from the use of bitters are largely or entirely psychic. The same author believes "the physiological way of augmenting hunger and appetite is moderation in the food intake, or increasing the utilization of the food in the body by outdoor living, fresh air, cold baths, and physical work."

SUMMARY

In reviewing our present knowledge of such a complex subject as the sensations of hunger and appetite certain important general facts appear among the many perplexing problems which have not been unraveled. The subject has attracted the attention of the world's leading physiologists, and their experimental work has proven a sound basis for clinical investigations. While theory has not altogether agreed with practice, it must be remembered how difficult it is for the laboratory to duplicate human organic disease. In the main the careful observations and experiments of clinicians have substantiated the findings of the physiologists, and are giving us a clearer conception of the nature and treatment of disorders of hunger and appetite, but at all times we must bear in

mind a possible psychic factor which can account for a dissimilitude between theory and apparent fact, and may mislead us as to therapy.

210 Post Street.

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DIGITALIS THERAPY

ITS USE IN CHILDREN

By Phillip E. Rothman, M. D.
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Discussion *by William W. Belford, M.D., San Diego; Verne R. Mason, M.D., Los Angeles; Alfred H. Washburn, M.D., San Francisco.*

THE confusion that exists in regard to digitalis therapy in children may possibly be explained by the limited number of papers that have appeared on the subject. A number of pediatricians still believe that the drug is harmful in heart failure in children. Many use it and do not obtain satisfactory results. Methods of administration are not uniform. A similar state of affairs existed among internists a decade ago. In 1919 Christian [1] pointed out that many practitioners were not obtaining good results from the use of digitalis. He repeatedly saw adult patients come to the hospitals with markedly broken compensation, although they had been receiving digitalis on the outside. Once in the hospital, they responded promptly to treatment. Insufficient dosage was the most frequent explanation. He also decried the common practice of prescribing the tincture by drops and counting a drop as a minim.

INDICATIONS FOR DIGITALIS THERAPY IN CHILDREN

Our understanding of the indications for digitalis has been greatly aided through a paper by Harrison and Leonard.[2] This article was highly commended by Canby Robinson, who stated that in the last ten years it represents the most significant contribution to our knowledge of digitalis. They presented experimental evidence that digitalis diminishes cardiac output; hence, diminishes cardiac work. In this sense, digitalis is a "cardiac sedative," and not a "cardiac tonic." If heart failure is associated with increased cardiac output, then a correction of this factor is one explanation for the beneficial action of the drug. The drug is indicated only in cases of true heart muscle failure, and not in those conditions in which the clinical picture indicates acute circulatory failure or shock without evidence of visceral or peripheral congestion. When the cardiac output is decreased and simultaneous evidence for lack of ventricular balance does not exist, digitalis, if given in effective doses, may have a harmful action. Among many pediatricians the drug has fallen into disrepute because it has been used in a wide variety of diseases without any rational pharmacologic basis. Auricular fibrillation, a condition which responds most readily to the drug, very rarely occurs in children. There is no doubt, however, that heart failure with normal rhythm is also amenable to treatment. Failure due to acute rheumatic fever constitutes the chief indication for digitalis in children. Another indication first emphasized by Sutherland,[3] and subsequently by McCulloch and Rupe,[4] and also Williamson,[5] is a rapid, regular, persistent heart action associated with rheumatic fever. In these cases digitalis may be used to slow the rate only after all other causes, such as pain, fatigue, fever, and excitement have been removed. It is quite likely that this does not constitute an entirely separate indication, but perhaps the tachycardia is simply an early manifestation of what might be termed "occult" heart failure. It must be emphasized that digitalis is ineffective when used to slow the heart rate in the acute infections accompanied by fever, in the cardiac neuroses such as "effort syndrome," thyroid disturbances and acrodynia, and also in the condition termed paroxysmal tachycardia. The drug does not exert a specific diuretic action on the kidneys, and is never indicated in a nephritis with edema unassociated with heart failure. In the circulatory disorders of diphtheria and in heart failure due to congenital lesions, digitalis has no beneficial action.

Our knowledge of the tolerance of children for digitalis is due to the excellent work of McCulloch and Rupe.[6] They found that children with heart disease require about 50 per cent more digitalis to effect digitalization than do adults. Some of those children required 100 per cent more of the drug; that is, a quantity double the estimated dose, while others required only 10 per cent additional amount. This work has been verified by Jacobsen and Davison.[7] These authors found that the amount necessary for digitalization was on the average much greater than in adults—about twice the quantity. However, a tremendous individual variation exists, which in their series varied from 18 to 49 grains, or from 0.3 to 1.0 grain per pound. No satisfactory explanation has been advanced for this difference in tolerance between children and adults.

METHODS OF ADMINISTRATION

The rule first laid down by Withering in 1785 should be the basis of all present-day procedures, in regard to methods of administration: "Let the medicine be continued until it either acts on the kidneys, the stomach, the pulse or the bowels; let it be stopped upon the first appearance of any one of these effects." Christian has wisely added "until it acts on the respiration." Expressed in somewhat more modern phraseology, he meant

that the dose of digitalis is the effective dose. As to the type or preparation to use, Eggleston [8] has summed up the general consensus of opinion in the following statement: "Of the many proprietary preparations and specialties which are offered with high claims for oral administration, none is superior to the powdered leaf or a tincture of high grade, and most are decidedly inferior." The estimated dose may be calculated by Eggleston's body-weight formulas and then doubled to allow for the child's greater tolerance. It is a convenient figure to know, but not nearly so significant as in adult medicine, for reasons mentioned above. The method described by Jacobsen and Davison of administering three grains (0.2 gram) of the dried leaves in capsules every six hours until digitalization occurs is very satisfactory. The six-hour interval is safest, as this permits complete absorption of the drug from the stomach. This plan may be adopted regardless of the patient's age or weight. If the tincture is used the equivalent amount would be thirty minims (2 cc.) every six hours, and for patients who have been vomiting before therapy has begun, this amount of tincture may be given by rectum, diluted with one ounce of normal saline solution. In the few cases in which more rapid digitalization is necessary, the first dose, or the first and second doses may be doubled, provided no digitalis has been administered in the preceding ten days. When the patient is unable to retain digitalis by mouth or rectum, it becomes necessary to administer the drug subcutaneously or intramuscularly. In such cases digifolin may be used in the same way if one recalls that one cubic centimeter (not necessarily one ampoule) is equivalent to one and one-half grains of the powdered leaves. Complete digitalization by subcutaneous or intramuscular injections is not considered a sound procedure, as the absorption rate in patients with impaired circulation is extremely variable. Very infrequently is a patient so seriously ill that prompt results are an absolute necessity and the use of an intravenous preparation indicated. Pardee,[9] in a recent paper, has demonstrated that one minim of digifolin* per pound of body weight (patients' usual weight) is the most satisfactory initial dose for intravenous therapy. This amount is equal to one-half of the estimated full therapeutic dose. It should be given slowly with a hypodermic needle, so that about forty-five seconds are required for administration. If the first dose fails to produce clinical improvement, a second dose one-fourth the size of the first should be given in two hours. This may be repeated for four doses, although it is preferable to change to the oral route as soon as improvement occurs.

SIGNS OF DIGITALIZATION

When to stop digitalis requires a certain nicety of clinical judgment that is acquired after moderate experience. The difference in the amount necessary for the optimum therapeutic effect and for intoxication may be very small, and the latter must be avoided whenever possible. However, the great fear of producing digitalis intoxication is too often responsible for stopping the administration of digitalis before the effective dose is reached. It is better to give a little too much than not enough, as the deleterious effects are nearly always transient and subside with proper care. Moreover the difference between mild intoxication and fatal intoxication is a very large one. In discussing the criteria for digitalization it must be emphasized first that vomiting is a sign of intoxication and not a sign of digitalization. It can often be avoided. Reduction of the pulse rate usually does not occur in cases of adult heart failure with normal rhythm treated by digitalis in contrast to the cases of auricular fibrillation. On this point Mackenzie says that "while there is no doubt that digitalis relieves distress of breathing and reduces dropsy, it does not do so necessarily by slowing the pulse." In children, however, reduction of the rate in regularly beating hearts is a frequent sign of digitalization, although it must be remembered that occasionally all the favorable results which the drug accomplishes may take place without this phenomenon. This point has been carefully reviewed by Robinson,[10] who concludes as follows: "It seems evident that the amount of digitalis which is necessary to stimulate the cardio-inhibitory center sufficiently to cause slowing of the heart beat is usually greater than the amount that can be given to patients without production of toxic symptoms. However, individuals whose vagus centers are more easily stimulated than usual, or whose hearts are unusually susceptible to the slowing action of the vagi, are exceptions to this rule. *Children apparently fall into this category.* It is evident that the reduction of the rate of the normally beating heart should no longer be looked upon as an effect which digitalis should be expected to produce, at least in adults, although such an effect is desirable in many cases of heart disease."

Further evidence of digitalization is seen by the improvement in the patient's general condition, as manifested by his spirits, enjoyment of life, and desire for more active exercise. The change in the respiration is particularly significant—dyspnea and orthopnea are replaced by calm, easy breathing; the liver quickly returns to its normal size; the cyanosis disappears; the cough is relieved, and rapid loss of weight follows the increased urinary output. The size of the heart often diminishes and the action becomes stronger; the quality of the sounds improves, and the murmurs, which had disappeared during the feeble contractions of the heart, become audible again. Electrocardiographic changes, the well-known alterations of the T wave, are occasionally of help, but not nearly so constant as in adults. Digitalization should now be stopped and the daily maintenance dose begun. One and a half grains of the powdered leaves twice daily is the average dose. Our knowledge of digitalis elimination is very incomplete. Pardee's experiments on adults showed an average elimination of twenty-two minims of the tincture daily. Jacobsen and Davison found that a maintenance dose of three grains

* The same dosage applies to digalen and also to digitan solution.

of the leaves was satisfactory for most of their patients and probably represented the quantity excreted daily. One of their patients, however, required six grains per day, and a much younger patient, reported by Rothman and Leonard,[11] was maintained on one and a half grains a day.

SIGNS OF INTOXICATION

Nausea and vomiting, the arrhythmias, including the various degrees of heart block, ventricular extrasystoles, runs of extrasystoles, bigeminal pulse and very rarely auricular fibrillation are signs of digitalis intoxication. Should these develop during digitalis administration, the drug must be stopped until they have completely disappeared. When the dose of digitalis has been sufficient to produce very toxic symptoms, Eggleston [12] has pointed out that the elimination is proportionately slower than when the dose is small and relatively slightly toxic. He cites a case in which coupled beats resulted from the administration of 3.25 grams of digitalis. Eleven days after the last dose, and two days after the coupled beats had disappeared, only 0.675 grams was required to cause a recurrence of the arrhythmia. This same phenomenon occurs in children without any very satisfactory explanation. It serves to emphasize that whenever digitalis is used, constant bedside attendance and the most careful observation are necessary. The tremendous individual variation in tolerance in children makes a detailed examination of the patient an absolute necessity before the administration of the next dose.

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DISCUSSION

William W. Belford, M. D. (611 Medico-Dental Building, San Diego).—Doctor Rothman has rendered us a great service in attempting to set out guide posts for the use of digitalis in heart disease in children. Digitalis is a most powerful drug: demanding very detailed and careful observation of the patient with each dose; no two patients require quite the same dose and each dose is determined by actual trial—by giving enough to produce proper results in the case. The use of digitalis in heart disease of children is limited almost entirely to the later stages of the rheumatic group, and is used only on the most definite indications. Considering all heart disease in children, morphin or codein is used much more frequently than digitalis.

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Verne R. Mason, M. D. (523 West Sixth Street, Los Angeles).—The only possible criticism of Doctor Rothman's paper is its brevity. Amplification of many condensed cardinal principles of digitalis therapy might make for more ready assimilation. The large number of clinical and pharmacological studies of digitalis effects have been incorporated in this paper. They point to the conclusion that digitalis in adequate doses is indicated in heart failure in children as well as in adults with but few exceptions. The unwarranted fear of digitalis overdosage and the use of preparations of digitalis for which extravagant claims are made are responsible for many therapeutic failures. This becomes all the more important when one considers the relatively large amount of the drug necessary to induce the full digitalis effect in children. Fatalities from digitalis administration are very rare. The unknown factor, call it muscle fatigue, which is responsible for heart failure in adults is also present in children with symptoms of right and left heart failure and must be treated the same way in each instance. However, auricular fibrillation and other arrhythmias are less common in childhood where infection plays the dominant rôle. In adults most heart failure is relatively uncomplicated, while in childhood it is often difficult to decide what part of the clinical symptomatology actual heart-muscle failure is producing.

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Alfred H. Washburn, M. D. (University of California Hospital, San Francisco).—I agree with Doctor Rothman that there seems to be a very definite lack of understanding concerning the administration of digitalis to children. My own experience has been that this drug is given much too frequently and in rather inadequate dosage.

I was particularly gratified to have reference made to the work of Harrison and Leonard and others on variations in cardiac output. It seems to me quite useless to attempt cardiac therapy without at least some understanding of the recent advances in our knowledge of the physiology of the heart and circulation. Certainly digitalis becomes a more rational drug to use for hearts that are dangerously fatigued when we think of it as a sort of "cardiac sedative" rather than as a stimulant. Furthermore, when there is circulatory collapse associated with a diminished cardiac output we can now see why digitalis is not indicated, since that is the time when we do want a true stimulant.

I find myself quite in accord with Doctor Rothman on the question of dosage although I believe, when starting digitalization with three grains every six hours, it is well to have in mind the approximate digitalization dosage, using Eggleston's formula, modified for children. This means that it will take about two to two and a half grains per ten pounds of body weight to digitalize the average child. I should also like to stress the variability of potency in the ordinary tincture as against the relative constancy of potency in the dried leaf. I believe the tincture should be used only when its preparation is under close supervision and the potency of the resulting product carefully checked.

I believe I am a little less optimistic than Doctor Rothman regarding the chances of succcssfully digitalizing children without producing that most annoying of toxic symptoms, vomiting. Particularly in cases of congestive failure—the very cases which present the most definite indication for digitalization—the frequency of obstinate vomiting preceding any evidence

of good result from the digitalis, has impressed me. Occasionally this vomiting is associated with the cardiac failure itself. In such cases more digitalis will often give relief. On the other hand, there are many such cases in which pushing the digitalis simply produces a more pronounced gastric upset, even when the drug is given per rectum or subcutaneously.

One further point upon which I am inclined to be pessimistic is administration of digitalis to patients who show congestive heart failure, tachycardia or a persistent fever—evidence of continued carditis. In such children the percentage of cases which show improvement from digitalis therapy is small, while the number showing toxic symptoms is alarmingly high.

In spite of my pessimism I feel sure that the results of digitalis therapy in childhood would be more gratifying if the cases for its administration were chosen with greater care and if the dosage and general regimen recommended by Doctor Rothman were faithfully carried out.

UTERINE BLEEDING*

IN THE ABSENCE OF GROSS PELVIC PATHOLOGY

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Discussion *by Frank W. Lynch, M. D., San Francisco; John A. Sperry, M. D., San Francisco; Titian Coffey, M. D., Los Angeles.*

UTERINE bleeding in its various forms presents one of the most important of the problems that are constantly faced by the gynecologist. This is particularly the case with a class of patients in whom a pelvic examination fails to reveal any palpable changes which may be considered as etiologic factors—the so-called "functional" or "idiopathic" hemorrhages.

In this study, a series of seventy-three cases from the Stanford Women's Clinic have been considered. These patients complained of some type of abnormal uterine bleeding, and on examination no gross lesion such as pelvic inflammatory disease, carcinoma, fibromyoma, etc., could be made out. All abortions or cases of postpartum or postabortum bleeding were carefully excluded. The cases were taken consecutively, eliminating only those in which the case histories were incomplete or the pathologic specimens were not satisfactory for an accurate microscopic diagnosis.

CLINICAL MANIFESTATIONS

An analysis of the histories of these seventy-three patients shows that they fall into six groups according to certain characteristics of the bleeding.

First, are those patients who have a regular four-week menstrual cycle but with a prolonged and profuse flow, menorrhagia; (twelve cases).

Second, a group in which the menses occur at irregular, usually shortened, intervals; (seven cases).

Third, those with completely atypical irregular bleeding with no relation to the menstrual cycle; (twelve cases).

Fourth, patients with continuous bleeding lasting from a few days to several weeks, which sets in following a previously normal menstrual cycle; (fifteen cases).

Fifth, patients who notice that their periods become progressively more profuse or irregular and end finally in atypical, irregular bleeding; (five cases).

Sixth, all patients over forty years of age presenting symptoms corresponding to any of the above descriptions—the so-called climacteric or preclimacteric bleeding; (twenty-two cases).

HISTOPATHOLOGICAL STUDY

In eight of the patients complete specimens of the uteri were available for study, and in sixty-five, sufficient curettings were obtained for a satisfactory microscopic examination. The accompanying table shows the histopathological lesions that were demonstrable, and it is interesting to note the variety of diagnoses. The condition most frequently found was glandular hyperplasia of the endometrium in that it represented 50 per cent of the cases. There were also three instances of localized hyperplasias, *i. e.,* endometrial polypi, and it is worthy of note that two of these were in patients several years past the menopause. "Simple hypertrophy," a condition where the endometrium is markedly thickened but yet preserves its normal topography, was noted once. The diagnosis "endometritis" was made only three times and applied to those instances where the stromal changes, the infiltration with round cells and the presence of large numbers of plasma cells pointed to the probability of an inflammatory process. Atrophy of the endometrium was limited to five patients, four of whom were over forty, and since the fifth was thirty-nine years old they may all be considered as of the menopausal age. Finally, in twenty-four cases the endometrium was designated as normal. In these specimens the general appearance corresponded to the physiologic cyclic changes, but in several there were dilatation of the capillaries, moderate round cell accumulations, and areas of focal necroses. In many was found the picture of a normal interval phase with tremendous infiltration with blood.

The accompanying table was drawn to establish some relation between the microscopic diagnosis and the clinical manifestation of the bleeding. It is seen at once that there are almost no common characteristics between the two. Clinical Group V patients apparently have a glandular hyperplasia, and this lesion is also the most frequent finding in bleeding at the time of the menopause. Atrophy of the endometrium represents an involution phenomenon, found only in our elderly patients. Beyond this, it has been impossible to correlate the clinical and pathological findings. Patients complaining of symptoms corresponding to any one of the groups described above showed in most instances well-developed lesions such as glandular hyperplasia, but, on the other hand, in twenty-four patients the endometrium was essentially normal.

ETIOLOGY

The cause of the bleeding in these patients is so little understood that it is impossible to consider here all the various explanations that have been advanced. The subject is indissolubly associated

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* Read before the Obstetrics and Gynecology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

Table 1.—*Uterine Bleeding*

	I Menses Profuse Reg. Cycle	II Irregular Menses	III Atypical Irregular Bleeding	IV Reg. Cycle then Cont. Bleeding	V Progressive Men. Met.	VI Patients over 40	Total
Glandular Hyperplasia	3	3	8	7	3	13	37
Endometrial Polypi	1	–	–	–	–	2	3
Simple Hypertrophy	–	–	–	–	–	1	1
Chronic Endometritis	1	–	–	1	1	–	3
Atrophy	–	–	1	–	–	4	5
Normal Endometrium	7	4	3	7	1	2	24
TOTAL	12	7	12	15	5	22	73

with the problems of menstruation. In both normal and abnormal bleeding it is probable that the actual hemorrhage results from the same local process, namely, focal necroses and injury to the endometrial capillaries, but the exact mechanism by which this is brought about and the question as to which of these two changes is the cause and which is the effect, is undetermined. It has been suggested that a trypsin ferment which appears in the endometrium at the time of the menstrual period or possibly certain other chemical differences which exist between menstrual and circulating blood may be the factors which initiate the local endometrial changes.

It is felt that in a series of patients such as is here presented the endometrial findings are purely secondary to some condition outside of the uterus, with the exception of the cases which show evidence of definite inflammatory change. In severe local inflammations of the endometrium with resultant necroses and ulcerations, the causal factor for the bleeding is evident. However, in the other instances it is necessary to look further afield. Abnormal bleeding invariably accompanies glandular hyperplasia, but we must seek the cause of the hyperplasia. Conditions such as simple hypertrophy or atrophy of the endometrium, or endometrium showing normal cyclic changes do not result in irregular bleeding without the intervention of some other abnormal influence.

The study of the interrelationship between the ovary and the endometrium has made it evident that the cyclic changes in the endometrium are subservient to other cyclic changes in the ovary. Since any disturbance in the function of the ovary will disrupt this interrelationship and may lead to abnormal proliferation of the endometrial tissues, the ovary has appeared of prime importance as an etiologic factor in cases of so-called "functional bleeding." This seems to be true especially where the endometrium gives a picture of glandular hyperplasia, for R. Schröder and R. Meyer have shown that in these patients the ovaries show the presence of persistent follicles and an absence of corpora lutea. In other instances, where bleeding sets in following a period of amenorrhea, it has been suggested that there exists a persistent corpus luteum in the ovary.

There are also many other extragenital factors of less importance in producing abnormal uterine bleeding. In this series there were four patients with hypothyroidism whose basal metabolic rate varied between —12 and —21, and in whom the microscopic picture of the endometrium was not characteristic. Another patient was found to suffer from advanced mitral disease. Finally, many other conditions are quoted—acute infectious diseases, chronic nephritis, purpura, alcoholism, etc.—which are usually seen by the gynecologist in consultation with the internist.

Although it is frequently stated that subinvolution or chronic metritis may *per se* cause bleeding, it is doubtful that this is actually true. However, it is certain that in those patients where there is a deficient uterine musculature and also in all local pelvic conditions such as uterine displacements which conduce to pelvic congestion, we are more likely to meet with abnormal bleeding and when once it has set in, it will be much more profuse and prolonged.

TREATMENT

Since the actual etiologic factor in this condition is as yet only vaguely understood, the methods of treatment in vogue do not rest on a scientific basis and are usually directed to the endometrium itself. However, where uterine bleeding results from a systemic illness it is self-evident that treatment must be directed toward improvement of the patient's general condition. In the other cases the means at our disposal may be grouped into five categories: first, drug therapy; second, organotherapy; third, curettage; fourth, radiation; and fifth, hysterectomy.

Drug Therapy.—The use of preparations such as ergot and strychnin, which stimulate uterine contractions, have a somewhat limited use in the treatment of "functional" uterine hemorrhage. These are not curative in any sense, but may be of some value in diminishing the amount of blood loss, especially where there is a large subinvoluted uterus.

Organotherapy.—Since we are dealing with conditions which apparently have their origin in an endocrine disturbance it is not surprising to find that a large number of such preparations have been employed. The results obtained vary greatly. The dried ovarian extracts may be dismissed at once as being of no practical value in the treatment of abnormal uterine bleeding. From a theoretical standpoint it would seem that the administration of corpus luteum would be of help since there is experimental evidence that the hor-

mone from a mature corpus luteum inhibits menstruation. Although some beneficial effects have been reported, especially in cases of puberty bleeding, the consensus of opinion seems to be that the available commercial preparations of this substance have yielded very discouraging results. The use of thyroid extract is of very great value where the bleeding accompanies a deficiency of the thyroid gland, and this is very well illustrated by four cases in the series here reported. Since the parathyroid extract has come into use there have been several attempts to apply it to various hemorrhagic conditions, and among others to the bleeding uterus. A few good results have been obtained owing to the effect of the hormone on calcium metabolism, but this preparation should not be given blindly to cases of menorrhagia or metrorrhagia unless it can be demonstrated that there is a deficiency of calcium salts in the blood. The injection of posterior pituitary extract in daily doses of 1 cc. over a period of a few days has been found of great assistance in controlling the bleeding in many instances, but it is questionable if the desired effect is obtained from an endocrine modification and it is more likely purely a result of the stimulation of the uterine musculature. The work which has recently been done demonstrating the importance of the anterior pituitary gland in regard to ovarian and uterine function has stimulated great interest in the therapeutic possibilities of the extract from this gland. This subject is still in the experimental stage, but it is hoped that when satisfactory preparations are available and the indications for its use are clearly established it may prove of value. It must be concluded, therefore, that organotherapy in the treatment of "functional" uterine hemorrhage has given a few hopeful results, but on the whole has not lived up to expectations.

Curettage.—The use and misuse of the curette still remains a subject for ardent controversy among gynecologists. In the type of case discussed in this paper, curettage does not hold a very important place as a curative therapeutic agent. Twenty of the patients in this series were seen at least six months following a curettage, and only nine did not report a return of symptoms. Of these, three had other operations and two were receiving thyroid extract, so that it may be said that only four patients out of twenty were cured for six months or longer by the use of the curette. However, it must be remembered that it is the effective treatment in cases of endometrial polypi and also in postpartum or postabortum hemorrhage which may very well be mistaken for "functional" bleeding. And finally, in cases of glandular hyperplasia a curettage will invariably bring relief for a few months, so that it may be desirable to treat young women by repeated curettages in the hope of an eventual endocrine readjustment rather than submit them at once to sterilization by radium or hysterectomy.

As a diagnostic procedure the curette is of inestimable value, and since the possibility of cancer must always be considered, especially in women over thirty years of age, I firmly believe that scrapings should be obtained from the endometrium and examined under the microscope in all patients with severe uterine bleeding.

Radiation.—The application of radium is the treatment of choice in cases of "functional" bleeding, but at Stanford we have limited its use almost exclusively to women at the climacteric or the preclimacteric age owing to its destructive effect on the ovaries. These patients are given an anesthetic, a diagnostic curettage is performed, and radium is inserted directly into the uterine cavity. Since we have recently had a recurrence of symptoms following the use of 1200 milligram hours, the dose at present employed varies between 1500 and 1800 milligram hours. Satisfactory results have also been obtained with the x-rays, but since we consider it so important to perform a diagnostic curettage, and it is so simple to introduce radium at the same time, the vast majority of our patients are treated in this manner.

Hysterectomy.—Although the use of radium has limited the indications for this major surgical procedure, it must still be considered under certain conditions. It must be resorted to where radium is not available, where there is an accompanying lesion requiring surgical intervention, and finally, it may be performed in women of the childbearing age who suffer from intractable bleeding and there is the express desire to conserve the ovaries.

CONCLUSIONS

A series of seventy-three patients with uterine bleeding, and in whom there were no palpable lesions in the pelvis, have been considered. A comparison of the clinical manifestations of the bleeding with the histopathological findings showed no definite relation between the two. Glandular hyperplasia of the endometrium was the lesion most frequently found, and in twenty-four cases the endometrium was essentially normal. The actual bleeding is due to local processes in the endometrium resulting from the influence of some external factor which in most instances is probably a disturbance in the function of the ovary.

In the treatment of these conditions many procedures have been advocated. Several drugs and many endocrine preparations have been recommended, but on the whole the results have not been encouraging from a curative standpoint. Although a curettage does not actually cure many of these patients it should be performed as a diagnostic procedure, and it also brings temporary relief to a considerable number. Radium is the treatment of choice in "functional bleeding" at the time of the menopause, and hysterectomy must be resorted to under certain circumstances.

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DISCUSSION

FRANK W. LYNCH, M. D. (University of California Hospital, San Francisco).—Nearly all who have studied the endometrial scrapings in idiopathic menorrhagia, report that hyperplasia of the endometrium is practically a constant finding, and say that after curettage the endometrium which grows again is hyperplastic and not normal. The presence of hyperplasia is such a constant finding in the idiopathic menorrhagias usually reported in the literature, that some, as Novak, question the diagnosis in the absence of this

characteristic finding. The exponents of this theory follow the lead of Schröder, who ascribes the hyperplasia to a failure of complete ovulation and consequently the absence of a corpus luteum. There is no doubt that some of these cases have no corpus luteum, but my own experience suggests that it is an unusual condition.

A few years ago Dr. J. H. Dorn reviewed for me eighty-nine cases which we had diagnosed as idiopathic menorrhagia, because of the presence of prolonged increased menstrual bleeding of several months' duration, and the absence of gross pelvic pathology, or inflammatory reactions in the endometrium, polyps, fibroids, or other recognized causes for intra-uterine bleeding. A number of these women had been treated by hysterectomy with removal of the ovaries and their tissues were available for complete study, yet in only three of them could we find no evidence of a corpus luteum. Moreover, many of our cases, just as in Fluhmann's series, had a normal endometrium.

It is my belief that the future literature will show that many of the cases considered as functional or idiopathic menorrhagias are in women whose organs are undeveloped and whose uterus is deficient especially in the musculature. To my mind, it is not necessary to assume that the essential lesion of these idiopathic menorrhagias is the absence of a corpus luteum, or one which remains many months without retrogressing. Twenty years ago Theilhaber demonstrated that the uterine circulation depends upon uterine musculature which is capable of firm contraction, and that because there are no valves in the uterine veins, and because the venous channels which connect the capillary whorls in the uterus run in a straight line, that a back-flow into the endometrial venous capillaries is not only likely but quite to be expected, if the muscle surrounding the straight veins does not contract rhythmically and firmly. His theory that the uterus is the "pelvic heart" has received scant attention, and has been confirmed only by Sampson's beautiful anatomic study of the cause of bleeding in uterine fibroids. The theory that bleeding in menorrhagia comes invariably in the absence of physical or inflammatory trauma from venous capillaries has been proved a fact. It is also a fact that the so-called idiopathic menorrhagia in girls at puberty is found chiefly in those with poorly developed uteri. Nearly all, moreover, who curette women in the premenopausal age because of bleeding not due to tumors, pregnancy, or inflammation, find that the uterine cavity is enlarged and that the uterus appears so fibrosed, that the condition is often termed fibrosis uteri.

If we investigate the history of these women we will find that usually they have been relatively sterile, often have congenital uterine misplacement and other evidence of pelvic immaturity.

No one form of therapy, in my mind, is as reasonable and successful for the treatment of these women as radium. By this means many women have been spared the pain, risk, and long period of invalidism that follows a hysterectomy. Doctor Fluhmann's statement as to hysterectomy is careful and correct. Yet many will interpret it as warranting hysterectomy as a routine procedure, provided the surgeon has not radium at his disposal or is trained to use it. Nothing could be farther from the fact. The mortality for hysterectomy in this group of cases is greater than that for fibroids, and in my clinic is second only to carcinoma because of the high incidence of postoperative embolism. I believe that hysterectomy is indefensible in this type of case. With proper dosage of radium it is quite possible to check the bleeding without precipitating a long-continued menopause. Many patients who entered the University of California Clinic with this form of menorrhagia are now menstruating regularly and normally after therapy and radium. Underdosing, rather than overdosing should be the rule of treatment. If the first dose is too small a second treatment may be given without risk.

John A. Sperry, M. D. (490 Post Street, San Francisco).—This is a very interesting problem which, as we know, is very little understood. The balance of those factors concerned in the regulation of menstruation is so delicate that many comparatively unimportant physical irregularities will upset the normal function, and cause either profuse bleeding or stop the periods altogether. This, as has been mentioned, is particularly true of the anemic, underdeveloped, neurotic girl whose general musculature, including that of the uterus is faulty. Therefore I feel that we do not always pay enough attention to the improvement of the general physical condition of these patients. The personal hygiene of the average woman in menstrual life is not good. Many are insufficiently nourished, do not take the proper exercise, do not get proper sleep, many work too hard in close, badly ventilated rooms, and in the present age many smoke too much and indulge in alcoholic excesses to a certain degree. The highly trained specialist is apt to consider the patient, with the microscopic eye directed at the parts he specializes in, rather than to study the individual as a human machine with many parts, all of which must be made to function properly.

I agree most heartily with Doctor Fluhmann, that a diagnostic curettage should be done in every case of prolonged bleeding. As a matter of fact, no one can know what a bleeding uterus contains if bimanual examination shows no abnormalities and there has been no recent pelvic inflammatory process. Therefore, when bleeding has continued over a period of time in the class of cases referred to, the only consistent and reasonable method of making a diagnosis is a pathological report of the scrapings. Should such report show no malignancy, then any fault in the mode of living of the individual should be speedily corrected. The question of the use of radium is one to be considered with great care. I never use large doses of radium, except in malignancies. Considerable doubt exists as to the use of radium even in small doses in women who may perhaps subsequently bear children. Extensive investigations are being made at the University of Pennsylvania on this subject. It is quite probable that children born after radiation of the pelvis may exhibit congenital abnormalities. I never give more than 800 milligram hours, and usually employ around 600 milligram hours. In younger women, where childbearing is not especially desired or who have had one or more children, I think when the bleeding becomes a menace to life a supravaginal hysterectomy, leaving the tubes and ovaries intact, is much to be preferred. I have found such an operation to carry practically no danger because it is clean, easily done, and, in my experience, the sex characteristics have been maintained until the usual menopause age is reached. Of course hysterectomy is not resorted to until all other measures have failed, including, perhaps, several curettages.

Titian Coffey, M. D. (1136 West Sixth Street, Los Angeles).—Interval menstrual bleeding is always a cause of alarm to the patient, and one of anxiety and uneasiness to the physician, until the correct diagnosis is made and successful methods of treatment instituted, eliminating, if possible, the cause of the trouble and correcting the condition. Thanks to the altruism of the medical profession and the educational propaganda being put before the laity today by means of public health articles published in the newspapers and special magazines, and broadcast on the radio, women are being given practical information and are more ready now to early report these irregular phenomena to their physicians than formerly. Hence the profession is aided in making early diagnoses of pathological conditions endangering life, and can allay or correct minor situations that might later lead to grave eventualities.

The incidental irregularity of periods with intramenstrual spotting or serous discharge in women from thirty-five years of age on until the menopause occurs is a frequent phenomenon, the contributory causes of which have not yet been scientifically worked out. It is quite probable the underlying basis is an endocrine

dysfunction dependent upon histological and biological changes that take place with increasing age.

Doctor Fluhmann's statistics are interesting in showing that glandular hyperplasia of the endometrium is the cause of the bleeding in the preponderance of cases observed. A study of cervical lesions, as a possible source of infection or primary cause of the matter under discussion, would have been of interest and value as a corollary to the study; knowing the number of pregnancies in these cases, and whether or not they were abortive or went to full term. These may well be primary sources of endometrial and uterine structural changes.

Erosion, more or less, of the multiparous os, cystic cervicitis, endocervicitis, cervical hypertrophy, cervical laceration, grossly infected cervices are all contributory causes to pathology in the uterine body and endometrium. Frequently by correcting these conditions and especially cervical laceration following childbirth, as has been advocated for years, a minor pathology that later may give rise to annoying symptoms is done away with and our patients saved later operative interference.

In my opinion, radium preceded by curettage is the procedure of choice, with hysterectomy as a last resort, for those approaching and past the menopause and the childbearing stage of life. Curettage is too apt only to give temporary relief, and drug therapy usually proves unsatisfactory and disappointing.

THE COLLINGS ELECTROTOME—ITS USE*

By Charles S. Vivian, M. D.
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and
Robert V. Day, M. D.
Los Angeles

Discussion *by Albert Manson Meads, M. D., Oakland; Nathan G. Hale, M. D., Sacramento; O. W. Butler, M. D., Los Angeles.*

A RELATIVELY inexpensive type of high frequency machine has been recently developed by the Wappler Electric Company, working on an idea of Dr. C. W. Collings of New York. This apparatus, when used in conjunction with suitable electrodes, acts in precisely the same manner as the so-called radio knife, but in a much more intensified way. Unfortunately, in the various papers which Collings has published, a clear statement as to exactly what constitutes the "electrotome" is not made. As a matter of fact, the generating machine should be called by one name and the electrodes by another. With this explanation made, for the purposes of this paper the knife electrode will be referred to as one portion of the assembled apparatus, and the high frequency generating machine as the second. In this manner a greater degree of clarity of expression will have been attained.

CONCERNING THE APPARATUS

The high frequency generating machine, sometimes referred to as the Collings electrotome, delivers a current of oscillations which are estimated at about 1,400,000 per second. Collings authoritatively states that the frequency of oscillation is stepped up about fourteen times over previous high frequency cutting generators.

The rapidity of these oscillations prevents their fading out, and they deliver at the end of the Collings electrode a current which is said to cut rather than burn the tissues with which it comes in contact. At any event, the slough produced by the use of the apparatus is less than that produced by slower oscillating currents. Other things being equal, the greater the frequency the less the actual burning and, consequently, the greater the degree of approach to a purely cutting instrument—that is to say, a solution of tissue continuity with a minimum amount of tissue necrosis resulting from the cauterizing effect. It is needless to state that every cautery knife does produce some superficial necrosis, otherwise there would be no hemostasis. It is important, however, that there should be a minimum of cautery effect: just sufficient to obtain a practically bloodless operation, and yet not sufficient to result in a cautery slough, the separation of which might tend to cause bleeding or secondary hemorrhage.

TECHNIQUE

When cutting through a bar at the bladder neck one should withdraw the pan-endoscope and the electrode as one instrument, and not simply withdraw the Collings knife itself; otherwise vision will be distorted. Therefore one advantage of this method is that, by its use through the McCarthy pan-endoscope, the cutting blade is constantly under the eye of the operator, and hence makes for precise incisions. The thin, hooked platinum blade first divides the offending tissue at a desired point. It is then used to whittle off the obstruction remaining on either side of the groove so made, so that after healing has taken place one has obtained a perfectly circular bladder neck.

INDICATIONS FOR USE

In his most recent publication Collings states that the procedure gives valuable results in:

1. Fibrous contracture of the bladder neck and median bar formations.
2. Fibrous bar following prostatectomy.
3. In certain cases of bar associated with carcinoma of the prostate in which bar formation has led to considerable urinary obstruction aside from the prostatic carcinoma proper. (Braasch and others have called attention to this bar formation associated with carcinoma of the prostate, and it is a matter of everyday clinical observation that it is found in a certain percentage of prostatic carcinomata.)
4. We have found that it is useful and constitutes an expeditious method of removing post-prostatectomy tags and small nodules that give rise in some cases to irritation obstruction, and in certain instances, to some extent, to an inability of the bladder neck to contract completely and regularly throughout its whole circumference.

EXPERIENCE OF THE AUTHORS IN THIS METHOD

The authors of this paper have used this method in twelve cases of prostatism due to collar contractures or bar at the bladder neck. Structural results have been better than by any other method except, first, in those cases in which a punch operation was done at the time of a supra-

* Read before the Urology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

pubic cystotomy, or second, in some two-stage operation cases, where following a suprapubic cystotomy, the punch procedure could be accurately done with finger guidance through the cystotomy opening. There have been no failures. The only case where the residual urine has not been reduced to small amounts, or completely eliminated, is in one patient with a history of old syphilis and in whom there was undoubtedly an arrested organic change in the lumbar cord. In this patient the residual urine was markedly lessened, but in spite of the fact that a practically perfect structural result was obtained on the bladder neck it was impossible to reduce his residual urine to less than 100 cc.

Adaptation of the method to correct the result of trauma was done in a man who had suffered a crushing injury of the pelvis, and which had resulted in transverse laceration of the urethra with its consequent extravasation of urine. Suprapubic and perineal drainage of the bladder was done. Continuity of the urethra was reëstablished by retrograde catheterization of this structure, resulting in closing of the suprapubic wound. Scar contracture of the bladder neck and at the site of the severance of the urethra took place. The patient entered the service of one of us with the perineal fistula open, and constant leakage of urine through the urethra. Upon cystoscopic examination the vesical end of the perineal fistula was discovered in about the middle of the trigone. Its urethral or proximal margin was obscured by a fibrous semicircle of tissue, which served as a dam to divert the urine into the fistula, much as a funnel would serve to direct a fluid stream into a bottle neck. A small stone was found behind this obstruction, and picked out by means of the cystoscopic forceps.

The fibrous diversion dam was cut through in three places, and then whittled away cautiously with the cutting electrode. By the same method the vesical end of the fistula was scarified. The fistula closed, and has remained healed, although subsequently at different times three small stones were removed from near its vesical end. The scar contractures of the urethra being next attacked, were relieved by cutting through them with the electrotome current. The incontinence has been reduced to an occasional wetting when the bladder is overdistended.

Collings states that he has had no case of secondary hemorrhage. The authors have had one case of severe secondary hemorrhage. This, however, should not in any way serve as a justifiable criticism and make one fearful of its occurrence, for we must realize that any cautery operation, no matter how perfect it may be, is occasionally followed by secondary hemorrhage. This secondary hemorrhage is always controllable if one empties the bladder of clots, examines the urethra and bladder neck with a McCarthy pan-endoscope, so that through this the bleeding points may be cauterized.

LIMITATIONS

There are necessarily well-defined limitations to the usefulness of Collings' method. In the opinion of almost all capable urologists benign hypertrophy of the prostate is not suitable for this or any other method except enucleation. Collings so states, and in a discussion of his paper, Keyes, Beer, Randall, and others have stressed this point. Numerous other able urologists who have not discussed this viewpoint in publication have so stated their conclusions privately. Occasionally advocates of the punch operation by one or other of the methods in use for such procedure apparently believe that removal of small pieces of adenomatous prostate by the punch, serves to relieve edema, and cause retraction of the remaining adenomatous prostate. However, in the experience and belief of most urologists, exactly the opposite occurs.

ANESTHESIA

Like every other minor operation, various methods of anesthesia may be used. In a patient in whom, by reason of the condition of the cardiorenal and vascular system, there is no contraindication, scopolamin-morphin anesthesia is the simplest form, and in many cases is entirely satisfactory. Caudal or spinal anesthesia—especially spinal—is available and satisfactory in almost all cases. Perhaps in some instances nitrous oxid-oxygen will be found desirable. The use of ethylen is contraindicated because of the danger of explosion.

CONVALESCENCE

Convalescence is reasonably uneventful. Epididymitis, of course, may occur in a certain percentage of cases. Very seldom has retention resulted. The patient usually finds urination is immediately very much freer than before the operation. Fever and other evidence of infection are either negligible or not marked in most instances. This depends, however, upon the concomitant pathologic conditions, especially in the urinary organs, as well as elsewhere.

SUMMARY

The Collings high frequency generator affords a machine that is indispensable if one intends to use the Collings knife. Fortunately it serves as well as any machine on the market, and better than most, for use in surgical diathermy or for destruction of papillomatous and other growths in the bladder, through the cystoscope in the unopened bladder. The destruction of postprostatectomy tags and small nodules, as well as the destruction of polypoid growths in the urethra at the bladder neck of either the male or female patient, is easily done through the McCarthy pan-endoscope with suitable electrode. The apparatus is relatively inexpensive.

CONCLUSIONS

1. For the precise division of the thin bars at the bladder neck causing prostatism the Collings method seems preferable to all others.

2. It may at times be perfectly safe and proper to do this in the office.

3. There is a minimum of postoperative discomfort and complications, including secondary hemorrhage.

4. On the whole, scopolamin-morphin or spinal anesthesia is preferred by the authors.

5. The apparatus required is relatively inexpensive and, moreover, obviates the necessity of

other high frequency apparatus for surgical diathermy or use through the cystoscope—in fact, it is an improvement over most high frequency generators for this purpose.

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REFERENCE

1. Collings: American Journal of Medical Sciences, April, 1928.

DISCUSSION

Albert Manson Meads, M. D. (251 Moss Avenue, Oakland).—Any procedure which will reduce mortality and shorten convalescence will find a permanent place in the practice of modern medicine. The cystoscope with its accessory appliances is here to stay because it has accomplished these things, not only by making diagnosis more accurate, but by simplifying surgical procedures. The instrument described by the authors in their interesting paper ought to become an accepted part of a urologist's equipment, as it definitely, in a limited group of cases, changes a major procedure to a minor procedure and reduces mortality thereby.

I personally have not thus far used the Collings electrotome, but have used other instruments of less precision for the same purpose, such as Young's punch and the Caulk cautery punch. These two instruments have their disadvantages in that the whole site of operation is not clearly seen and hemorrhage sometimes follows. The Collings electrotome used through the McCarthy pan-endoscope, according to the authors, can be controlled easily, and its use is rarely followed by bleeding.

It must be remembered that the patients who qualify for this type of work are few and that not infrequently they are poor operative risks. Therefore, as Doctor Collings says, it is preferable to consider these cases hospital cases, as he has had a mortality of three in the thirty-four cases quoted.

I feel that Doctor Vivian and Doctor Day have done us a real service in emphasizing Doctor Collings' work, because undoubtedly this method of attacking the type of case mentioned is the best thus far devised.

Nathan G. Hale, M. D. (Medico-Dental Building, Sacramento).—There is no doubt that the Collings electrotrome is one step in advance in the treatment of fibrous contractors of the vesical orifice. It has two notable advantages over other methods now in common use—

First, visibility that is definite at the time of operation; second, decreased possibility of hemorrhage due to the use of the cautery knife. These improvements are of sufficient importance to commend the use of the Collings electrotome by specialists.

On the other hand it does not signify that this apparatus can be used on other than median bars. Nor is the procedure so simplified that operations on the bladder neck can be performed by all physicians or surgeons interested in relieving urinary obstructions.

The Collings electrotome has a definite place in the armamentarium of the urologist. It has a well-defined, though limited, field of usefulness.

O. W. Butler, M. D. (1136 West Sixth Street, Los Angeles).—The Collings electrotome, as described by the authors, is no doubt the instrument of choice in removing fibrous contractors of the vesical orifice through the cystoscope. The reasons for this have been plainly stated by them.

Improvements in electrical instruments of this nature are being frequently made, and no doubt the ideal is yet to be attained. However, the Collings electrotome has been proven and should be available to the urologist in the well-equipped hospital.

I recently examined a patient, male, age forty, who had been treated with this instrument for a well-defined median bar. The result was only fairly satisfactory. This was due, not to the fault of the instrument, but because the transverse incisions were not of sufficient depth to sever the bar completely.

I believe a second similar treatment will afford complete relief. This patient states that he experienced very little postoperative discomfort. There was no hemorrhage.

ACUTE PANCREATITIS*

REPORT OF CASES

By W. H. Olds, M. D.
Los Angeles

Discussion *by Frederick Leet Reichert, M. D., San Francisco; James F. Churchill, M. D., San Diego; John Homer Woolsey, M. D., San Francisco.*

ACUTE pancreatitis deserves our attention and study, not only because of its high death rate, but also because of the difficulty in diagnosis. As it is a relatively rare condition, the seven cases here reported should be of interest, especially as they do not seem to conform to the description usually given. In these cases I have been unable to determine any predisposing factor. The associated gall-bladder diseases are as likely to have been secondary to the pancreatitis as primary. The picture which is most impressive when the patient is seen, and which is the hardest to bring out in a description of cases, is that of an extremely sick patient.

REPORT OF CASES

Case 1.—Age, thirty-eight years. Married. Entered the California Lutheran Hospital on March 11, 1924, as patient 11857.

Past History.—Patient had sudden, severe attacks of pain in right hypochondriac region for the past fifteen years. These came on at irregular intervals—frequently an hour after eating. Pain was constant, lasting from two to twelve hours; often associated with, but not relieved by vomiting. Pain radiated to right scapular region; never to left. No other pain in back. Irregular indigestion, not relieved by alkalis or food. Much gas. Blood pressure had been as high as 220 in last two years. Bowels always regular.

Immediate Complaint.—Pain in epigastrium, nausea, and vomiting. Two days before patient began having "indigestion," which was associated with excruciating pain in epigastrium, referred to right scapula. Vomited several times. Had been under morphin since onset, but pain constant in spite of that. Temperature, 100 degrees; pulse, 150. Morphin was stopped as soon as she came under my care.

Physical Findings.—Large, rather obese woman, acutely ill, hiccoughing and suffering intense pain. Pulse, 160; poor quality. Temperature, 100 degrees. Not apparently shocked. Intensely jaundiced. No apparent cyanosis. Chest, negative. Abdomen moderately distended, tympanitic. Markedly tender over the epigastric, gall bladder, and right iliac regions. Abdomen soft throughout. Little muscle spasm. Blood pressure, 160-100. Urine negative, excepting for bile and numerous hyalin and granular casts. Leukocytes, 23,000; polymorphonuclears, 85 per cent; large mononuclears and transitionals, 4 per cent; lymphocytes, 11 per cent.

Operative Findings.—Abdomen contained about two pints of "beef broth" fluid. Flakes of fat necrosis on all abdominal viscera. Gall bladder small and com-

* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

pressible. Adhesions around gall bladder and foramen of Winslow. Omentum thickened. Pancreas was thickened, nodular, and about the thickness and size of a large hand. Hemorrhagic fluid in lesser peritoneal cavity. Appendix apparently normal.

Operation.—Pancreas and lesser peritoneal cavity were drained through foramen of Winslow, using a rubber tube. Condition of patient so bad that gall bladder could not be drained.

Postoperative.—Course was very stormy. The abdominal incision was reopened three times because of accumulations of fluid. A left perinephric abscess and an ischeorectal abscess developed, which were opened. For two months the patient's condition fluctuated, delirium lasting for days at a time, appearing with each accumulation of fluid. Severe indigestion developed at times, which was always relieved by pancreatic extract. Blood sugar was 118 mg. per 100 cc. on one examination. Eventually the patient made a complete recovery, and is well four years after operation. Incidentally, she has had no more of her old indigestion and right-side pain.

Case 2.—Entered Methodist Hospital on June 23, 1925, as patient 11011. Age, thirty-six. Married. Weight, 180 pounds.

Previous Illness.—Had always been well. Digestion good. Bowels regular. Some gas lately.

Immediate Complaint.—Pain in abdomen. About two weeks before, patient had slight attack of indigestion and diarrhea. Two days prior to admission he developed pain in his abdomen. He had taken soda, which made him vomit, but did not relieve pain. Also vomited later in the day. Pain had increased steadily. On the evening of admission it was very severe and was generalized over entire abdomen. Never referred to back or shoulders. Bowels moved after an enema, on day of admission.

Physical Examination.—Well developed but very sick man, in great pain. No jaundice. No cyanosis. Not shocked. Pupils contracted by morphin. Pulse, 98; temperature, 100.6. Chest, negative. Abdomen fat, slightly distended with gas. Generalized tenderness, but more acute over upper abdomen, and about equal over epigastrium and gall-bladder region. No rigidity of note, though some voluntary muscle spasm. Urine, negative. Blood pressure, 140-75. White blood cells, 19,700; polymorphonuclears, 94 per cent; large mononuclears and transitionals, 1 per cent. Icterus index, 12.3. Nonprotein nitrogen, 37 mg. per 100.

Operative Findings.—Abdomen contained large quantity of hemorrhagic fluid. Large and small patches of fat necrosis everywhere. The gall bladder was about normal size and distended with thick black bile. Adhesions obliterated the foramen of Winslow. The pylorus was very red. The head of the pancreas felt thickened, but was not soft.

Operation.—Lesser peritoneal cavity and pancreas were drained through gastrocolic omentum. Drains were placed in right and left kidney regions. Gall bladder was drained.

Postoperative History.—Patient had a rather stormy convalescence. Frequent attacks of nausea and vomiting. Indigestion finally cleared up by the use of hydrochloric acid and pancreatic extract. About six weeks after operation a mass larger than a fist appeared over the pancreatic area which disappeared gradually as the drainage decreased. The sinus drained for about five months. The patient made a complete recovery, and there has been no recurrence of the pancreatitis during the three years since operation.

Case 3.—Age, fifty-eight. Married. Entered the California Lutheran Hospital on October 14, 1925, as patient 18328.

Past History.—Always in fair health. Severe pneumonia thirty years ago, followed by an acute dementia which lasted several months.

Immediate Complaint.—Four days before admission patient was taken with a sudden, very severe, sharp pain in epigastrium. Called Dr. G., who followed the case until sent to us. The pain was quite well localized in epigastrium during the morning, but in the afternoon it radiated first to the right iliac region, then became generalized. Pain was constant, so severe and excruciating that cold perspiration appeared all over body. Examination by Dr. G. at that time showed the abdomen to be soft, with no muscle spasm. Some tenderness over umbilicus. Abdomen at no time rigid. Pulse and temperature normal at all times. Vomited constantly until day preceding examination. First day food vomitus, then mucus, but no bile, no fecal material. Bowels moved by enemas. When seen by us the temperature was 99, pulse 92, respiration 16.

Physical Examination.—Elderly woman, acutely ill, and in much pain. No jaundice. No cyanosis. No shock. Chest, normal. Abdomen distended with gas, tympanitic, no free fluid detected. Tender throughout but more so in right iliac fossa. Reflex rigidity here slight. Abdomen otherwise soft. Pelvic examination, negative. White blood cells, 10,600; polymorphonuclears, 69 per cent; lymphocytes, 28 per cent. Blood pressure was 120-65. Urine was negative.

Operative Findings.—Fat necrosis was generalized. No free fluid in greater abdominal cavity. Lesser cavity contained about ten ounces of characteristic hemorrhagic fluid. The pancreas was indurated throughout its entire length, with occasional soft areas. The head was particularly soft. The peritoneum overlying the pancreas was injected and dark brown in color. The pancreas itself was of a dark brown dish-rag appearance. The gall bladder was dark blue, soft, with greatly thickened walls. There were several hard lymph glands along the common duct. Bile was black. Appendix normal to palpation. Cecum distended with gas.

Operation.—After raising up the transverse colon the peritoneum overlying the pancreas itself was laid wide open with a finger, being very soft and mushy. The pancreas was drained through this opening.

Postoperative History.—The patient made an easy, uneventful recovery surgically. However, she redeveloped her old psychosis and was sent to a sanitarium for care by a neurologist. She went home well about six weeks later. Has remained well since.

Case 4.—Nineteen years old. Married. Entered the Los Angeles General Hospital November 5, 1925, as patient 237420.

Past History.—Negative as far as present condition is concerned.

Immediate Complaint.—About four months prior to admission, and two weeks before birth of last child, a dull pain developed in right lower chest and under margin of right ribs. These pains continued intermittently until one month ago, when they became worse. Pains, often cramp-like in character, superimposed upon constant dull pains and were referred to the right shoulder. Nausea and vomiting supervened and were worse at height of the pain. Loss of appetite has been quite marked. Fever of moderate degree. Two weeks before admission patient noticed that her skin was quite yellow. Condition on entering hospital: cramp-like pain, nausea and vomiting.

Physical Examination.—Patient is a young woman, acutely sick. Slightly jaundiced. No cyanosis. No shock. Chest, negative. Abdominal tenderness was generalized, but more marked in right upper quadrant and in epigastrium. There was some upper abdominal rigidity. No masses felt. Pelvis, negative. Laboratory findings: hemoglobin, 90 per cent; red blood cells, 5,130,000; white blood cells, 16,200; polymorphonuclears, 86 per cent; lymphocytes, 14 per cent. Stools were clay-colored. Urine was negative, excepting for acetone plus; diacet., 2 plus; bile trace.

Progress of Case.—Patient's condition remained about the same for five days. She was then referred to our service for immediate operation for acute pancreatitis.

Operative Findings.—Operation on November 10, 1925, five days after admission: Abdomen contained

large quantity of hemorrhagic fluid. Fat necrosis scattered over abdominal viscera. Gall bladder was distended and white, with many adhesions. Pancreas was soft and necrotic. Overlying peritoneum was necrotic, edematous, and red in spots.

Operation.—The easiest approach seemed to be through the transverse mesocolon. The pancreatic tissues separated at the slightest touch of the finger. A large quantity of hemorrhagic fluid escaped from the lesser peritoneal cavity. The bleeding was profuse and could not be controlled with forceps. The pancreas was packed tightly with gauze, which apparently controlled the bleeding. The abdomen was quickly closed and the patient returned to bed. She died thirty-six hours later; probably from surgical shock. No autopsy.

Case 5.—Age, sixty. Widower. Entered the Los Angeles General Hospital November 10, 1925, as patient 237669.

Past History.—Negative. No indigestion.

Immediate Complaint.—The day before admission felt dizzy while working, and had to stop. Ate usual dinner. Went to bed, but could not sleep. At 1 a. m. had violent, sharp pains in epigastrium. This pain had continued; did not radiate. Took salts, but the pain continued even though bowels moved. Vomited once with slight relief of pain.

Physical Examination.—Elderly man, rather acutely ill, in moderate pain. No jaundice, no cyanosis. No shock. Pulse, 82; temperature, 99.8. Blood pressure, 140-90. Chest, negative. Abdomen showed moderate rigidity of right rectus muscles. Marked tenderness in right upper quadrant and epigastrium; most marked over head of pancreas. Abdomen otherwise negative. White blood cells, 14,000; polymorphonuclears, 84 per cent. Urine albumin, 1 plus.

Diagnosis.—Acute pancreatitis.

Operative Findings.—Abdomen contained clear yellowish fluid. Two patches of fat necrosis seen. Tissues over head of pancreas necrotic. Head of pancreas necrotic and of "dish-rag" appearance. Duodenum red. Gall bladder distended, white, and wall was thickened. Appendix was normal.

Operation.—Lesser peritoneal cavity and pancreas were drained through transverse mesocolon, as that seemed to be the best approach. The gall bladder was drained.

Postoperative Course.—Through some misunderstanding on the part of the intern the pancreatic drains were removed on the tenth day. Patient's condition remained about the same for two days, then improved for a week. Wound drained rather profusely. His condition then grew progressively worse and he died thirty-six days after operation.

Autopsy by Dr. Roy Hammock: Examination showed a necrosis of about three-fourths of the pancreas. It had the typical dirty-dish-rag appearance. A cavity filled with pus and necrotic material extended from the pancreas to the right kidney region. The gall bladder had sloughed entirely away. The left lung and the middle lobe of right lung were riddled with abscesses. There was a terminal nephritis.

Case 6.—Age, forty-six. Entered Hollywood Hospital on November 24, 1927, as patient 16119.

Past History.—Unessential excepting for stomach trouble and indigestion for past two years previous to admission. One attack of pain in right upper abdomen associated with nausea and vomiting one year before admission.

Immediate Complaint.—Three days before admission patient had pain in right upper abdomen which lasted one and one-half hours. Next day the pain returned, even more severe, and was associated with nausea and vomiting. Pain had continued and was so intense that patient could not control himself even with the aid of opiates.

Physical Examination.—Well-developed man, acutely ill, and in extreme pain. Temperature, 100; pulse, 75; respiration, 20. No shock, no cyanosis. Blood pressure, 140-90. White blood cells, 24,200; polymorphonuclears, 88 per cent; red blood cells, 4,950,000; hemoglobin, 95 per cent. Urine, negative. Examination negative excepting for abdomen. Marked rigidity of entire right side of abdomen extending to midline; extreme tenderness over this area, but most marked under right costal margin.

Operative Findings.—Abdomen contained large quantity of clear, light brown fluid, not hemorrhagic. Numerous patches of fat necrosis spotted the omentum mesocolon and other fatty structures. The gall bladder was distended with tarry bile and packed with large and small stones. The pancreas was greatly enlarged and hard and was studded with petechial hemorrhages. The overlying peritoneum was tense, but unbroken; obviously the hemorrhagic stage had not been reached.

Operation.—Patient's abdomen was very fat, and rigid. Gall bladder and ducts were cleared of stones as well as could be done. Attempts to expose pancreas through the transverse mesocolon started hemorrhage, so was abandoned. Approach through the gastrocolic omentum was not much easier, but was carried out after a fashion. Due to the extremely poor condition of the patient and the operative difficulties the drainage was not so thoroughly done as could be wished.

Postoperative.—Course was very stormy for three weeks. Nausea, vomiting and hiccoughs present at intervals, lasting for two or three days at a time. Delirium and a mild psychosis lasted for about six days, associated with an alkalosis. Blood sugar, three days postoperative, was 149 mgs. per 100 cc. of blood; one month postoperative, was 130 mgs. Patient left the hospital six weeks after operation in good condition, but weak. Has had no further trouble to date.

Case 7.—Age, forty-five. Admitted to Los Angeles General Hospital on November 11, 1927, as patient 280249.

Past History.—Unessential excepting for attacks similar to those described below, but milder. Had lost fifty-two pounds weight in previous two months.

Immediate Complaint.—About two months before admission patient had a chill and an intense colicky pain starting in right hypochondriac region and radiating through to the right scapular region; pain was constant and associated with sweating. Temperature, 102. Pain lasted three days and was then controlled with morphin. Ten days later became intensely jaundiced. Stools became clay-colored. Constantly nauseated.

Physical Examination.—Patient was intensely jaundiced and acutely sick; otherwise negative excepting for abdomen. Abdomen: skin flabby, tenderness and rigidity over hypochondriac region. Urine relatively normal excepting for bile. White blood cells, 12,650; polymorphonuclears, 74 per cent; red blood cells, 4,050,000; hemoglobin, 90 per cent. Bleeding time, eight minutes.

Operative Findings.—Gall bladder wall greatly thickened. Multiple stones in gall bladder and cystic duct. One stone lodged in the ampulla of Vater, and one in the hepatic duct. Pancreas thickened.

Operation.—Stones were removed and gall bladder was drained. The operation was very difficult, especially the removal of the hepatic duct stone. A great deal of manipulation was necessary because the stone was very firmly lodged high up in the duct.

Postoperative Course.—Patient did moderately well for six days; then developed severe abdominal pains, and pulse rate increased. Patient grew gradually weaker and died ten days after operation.

Autopsy report stated: "Unessential excepting for generalized fat necrosis scattered over omentum and mesentery. Pancreas showed a few areas of hemorrhage. Gland moderately enlarged."

This was an acute pancreatitis following gall bladder surgery. The pancreas was obviously involved

before operation. Surgical manipulation was probably responsible for the acute flare-up.

COMMENT

From a study of these cases several conclusions may be drawn:

First: Nothing of importance can be added to the etiology of the disease. The associated gall-bladder conditions may have been either primary or secondary.

Second: These seven cases do not present the symptoms and signs which are considered diagnostic of acute pancreatitis.

There was no shock in any case. The pulse was not rapid excepting in Case 1. There was no protracted vomiting excepting in Case 3. There was no constipation. There was no marked rigidity of the abdominal muscles, excepting in Case 6, which had an associated acute cholecystitis.

Third: Adequate drainage must be employed. Case 1 had to be redrained four times. Case 2 would probably have cleared up more quickly if more liberal drainage had been instituted. Case 3 was well drained, and cleared up rapidly. Case 5 died because of insufficient drainage—that is, the drainage tubes were removed too early. Autopsy showed the abscess to be where the tubes had been placed.

Fourth: The main feature which the writer wishes to emphasize is that, even though these patients are critically ill, they are apparently very bad surgical risks and are very difficult to work with, and sufficient time must be spent in placing the drainage tubes where they belong. It is only by so doing that the mortality in these cases can be reduced.

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DISCUSSION

Frederick Leet Reichert, M. D. (Stanford University Hospital, San Francisco).—I have been very much impressed by the author's able management of these difficult cases.

It is interesting to note that his cases of acute pancreatitis all had symptoms of gall-bladder disease, or that evidence of biliary dysfunction was found at operation.

The history and findings are in accordance with the prevailing impression that entrance of bile into the pancreatic duct is responsible for the characteristic lesions in the pancreas. This shunting of bile is the result of an obstruction to the physiological outlet at the ampulla of Vater, either by stone, by catarrhal reaction and mucous shreds, or by spasm of the common duct sphincter. Archibald of Toronto has recently emphasized the validity of this theory, both clinically and by his experiments in cats. We know that the gall bladder, a contractile organ, can under conditions of irritation from inflammation or stone go into strong muscular contraction which may be of sufficient propulsive force to drive bile into the pancreas.

The duration of symptoms before operation is, of course, of prognostic value, as is the presence of bacteria in the bile. The effect of infected bile is to cause a much more serious inflammatory reaction in the pancreas with its sequelae of necrosis and abscess formation than does normal bile. In either case early surgical intervention is of the utmost importance.

Prolonged drainage of the pancreas is essential as has been emphasized in the paper. The skin irritation with prolonged pancreatic drainage can be minimized by ointments containing 2 to 3 per cent hydrochloric acid.

To prevent further access of bile into the pancreas the tension in the biliary system should be relieved when the patient's condition permits. This prolonged biliary decompression can be obtained by cholecystostomy.

Cases 1 and 6 suggest that several mild attacks of pancreatitis preceded the major illness. It is possible that Cases 5 and 6 developed a postoperative pancreatic asthenia as described by Allen Whipple. The cases with a definite history of gall-bladder disturbance might have been spared the subsequent acute pancreatitis had they been relieved by timely surgical intervention.

Our clinical experience points clearly to the fact that most cases of pancreatitis, whether chronic or acute, are initiated by dysfunction of the biliary system, so that preventive measures should be directed to this system to reduce the incidence of pancreatitis.

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James F. Churchill, M. D. (1310 Medico-Dental Building, San Diego).—That the majority of cases of acute pancreatitis are secondary to bile-tract pathology must be concluded from our present knowledge. If this be true, one wonders at the relative infrequency of this affection. This is fortunate, for in my experience acute pancreatitis has been most difficult of early diagnosis and very unsatisfactory in its surgical treatment. Doctor Olds' results have been most excellent, and I am sure it has been because the lesion was suspected relatively early and in several instances the abdomen opened without wasting valuable time in waiting to make a positive diagnosis.

One thing impressed me as unusual in the author's series—the absence of shock. In the cases I have seen, shock has always been the striking symptom. I am interested to learn that cases of the most severe type can occur without showing what I had always considered a cardinal symptom.

The most difficult differential diagnosis in suspected cases is between acute pancreatitis and coronary occlusion. The differentiation from other possible surgical lesions in the abdomen is not of such great importance, since the abdomen should be opened in either event—a misplaced incision being the worst thing that can happen. To open the abdomen of a patient with a coronary occlusion is, however, a grave error, but it is a mistake easily made unless an electrocardiogram is made. I have seen several cases of coronary occlusion with abdominal pain which presented practically every symptom of acute pancreatitis. After much discussion I had one of these cases opened and the surgeon found absolutely no pathology. The autopsy next day disclosed an occlusion of the right coronary. I do not wish to dwell too much on this point, but coronary occlusion is a much more frequent lesion than acute pancreatitis, and surgeons would do well to bear that fact in mind when the latter condition is suspected.

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John Homer Woolsey, M. D. (University of California Medical School, San Francisco).—Pancreatitis varies in degree from chronic to extremely acute. Cyanosis is a symptom of shock and occurs only in extremely severe instances of this malady. These two facts are not generally understood today, and failure to comprehend them leads to errors in diagnosis. From an observation of patients and by deduction from clinical histories, it is my belief that only a few of the patients correctly diagnosed as having acute pancreatitis ever come to operation. As a rule the complaints of such patients have been otherwise diagnosed.

The symptoms and signs of Doctor Olds' severe cases correspond to those described by Doctor Delprat and myself, and to the experience of others, as reported in California and Western Medicine, September, 1924. Epigastric pain, vomiting, and epigastric tenderness are the predominant characteristics, and care in noting the character, etc., of the first two and the location of the last is exceedingly important.

Drainage of the pancreas, especially when necrotic, should be large and plentiful. Marsupialization, rather than by drainage tubes. Drainage of the free abdomi-

nal fluid, however, is unwise, as it has a protective value.

I agree with the author that surgery is the proper treatment in really severe pancreatitis, but, on the other hand, it is my firm opinion that, in many instances, acute pancreatitis will respond to the treatment of rest, heat locally, opiates, and fluids in proper amount.

HEREDITARY SYPHILIS*

By STUART C. WAY, M. D.
San Francisco

DISCUSSION *by Harold K. Faber, M. D., San Francisco; M. W. Hollingsworth, M. D., Santa Ana; Kendal Frost, M. D., Los Angeles.*

ACCORDING to Sabouraud, the dental stigmata of hereditary syphilis are numerous. The Hutchinsonian teeth, belonging to that triad of symptoms so long regarded as diagnostic of hereditary syphilis, are only rarely encountered. The minor anatomical abnormalities of the teeth, since the advent of the Wassermann, play a still more important rôle, as their significance can be proved or disproved.

THEORIES CONCERNING DENTAL HYPOPLASIA

Theories concerning dental hypoplasia for many decades have evoked much thought. Parrot spoke of the rachitic theory; Magitot mentioned the eclamptic; Galippe considered the hereditary; Capdepont did not overlook the toxemias; Sanchez in 1785 regarded syphilis as an important factor; but it was Hutchinson, who in 1857 first emphasized the diagnostic value of dental malformations in syphilis, with special reference to the crescent-shaped deformity of the biting edge of the upper incisors. While Carabelli in 1844 wrote about the tubercle or extra cusp, which bears his name, it was Sabouraud who later mentioned its importance as a diagnostic factor in congenital syphilis. Fournier laid considerable emphasis upon the cuspal hypoplasia of the six-year molar and regarded it as pathognomonic of heredosyphilis, but Cavallaro in 1908 was less conservative and concluded that practically all forms of dental hypoplasia were due to syphilis.

Karnosh in his excellent paper does not overlook the fact that a history of the child's life is a valuable adjunct in forming conclusions as to the underlying causes of many of the dental deformities; and brings out the importance of the short intercurrent infections and other diseases of childhood, which leave their mark on the growing teeth.

All of us are familiar with the pitting of the finger nail in psoriasis, and with the various dystrophies seen in dermatophytosis, as well as with the horizontal ridges which appear after a severe illness, and by means of which one can approximately estimate just how long ago the illness occurred, basing the time upon the rate of nail growth. Many of the dental hypoplasias are due to multiple causes, as heredosyphilis sometimes occurs at one and the same time with other nutritional disturbances, and which change the original deformity.

INCIDENCE AND SIGNS OF CONGENITAL SYPHILIS

C. Morton Smith in his report on 1000 cases of congenital syphilis found significant dental defects in 389. He further states that most patients with congenital syphilis and suggestive teeth show other stigmata of their congenital disease, so that it is seldom necessary to make a diagnosis on any one sign alone.

Stokes regards the following as strongly presumptive or diagnostic of tardive heredosyphilis: a positive Wassermann, interstitial keratitis, Hutchinsonian teeth, mulberry molars, eighth-nerve deafness, saber tibia, osteitis of the nasal septum, snuffles, saddle bridge, epiphysitis, osteochondritis, splenomegaly before the fourth month, scars and early dactylitis. He claims the following are insufficient for diagnosis alone: frontal bosses, aplasia of the incisor teeth, scaphoid scapula, early epitrochlear adenopathy and a high, narrow, palatine arch. In his opinion the tubercle of Carabelli and alopecia areata are of debatable diagnostic value.

The Hutchinsonian triad, formerly greatly emphasized in diagnosis—(1) interstitial keratitis, (2) crescentic notched incisors, (3) eighth-nerve deafness—is now recognized as a rarity in its complete form.

ANALYSES OF DENTAL FINDINGS

Stokes in 202 cases of heredosyphilis made the following observations: bosses were present in 44 per cent, saber shins in 43 per cent, characteristic teeth in 32 per cent. These diagnostic signs were exceeded only by eye lesions (total), positive Wassermann, and interstitial keratitis.

In another series of 130 cases, with reference to the second dentition, the following findings were made: normal teeth, 30 per cent; syphilitic incisors, 28.5 per cent; suggestive incisors, 4 per cent; mulberry molars, 3 per cent; pegging, 10 per cent; aplasia, 10 per cent; serrated, 8 per cent; dystrophies, 2 per cent; and unclassified, 15 per cent.

Cannon in his paper concerning 202 cases of congenital syphilis, stated that although interstitial keratitis was the most frequent symptom which caused the person with late congenital syphilis to seek medical aid, being present in approximately 35 per cent of such patients, physical examinations showed the following dental deformities: sixty-four persons had wedge-shape anterior incisors, forty-five presented tubercles of Carabelli, thirty-three had mulberry molars, twenty-five showed delayed dentition, twenty-one had Hutchinsonian teeth, twenty-five had asymmetry of the face with prominent bosses of the head, and fifteen had saber shins.

The upper central incisor undergoes ossification from three centers, mainly during the first year of infancy. Just preceding this period any nutritional disease or febrile illness may leave traces upon the developing teeth, causing faulty dentinification and enamel formation, pitting and serra-

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tion. The distance between the teeth may be caused by their general underdevelopment as well as the narrowing of the jaw, so that they appear abnormally far apart or close.

In syphilis the middle denticle which forms the central portion of the tooth is suppressed and the lateral denticles by their continued and uncompensated growth produce bulging sides and anteroposterior thickening of the characteristic syphilitic incisor. The cutting edge of the tooth lacks the portion produced by the middle denticle, and bears a crescentic notch or defect, most marked on its anterior surface. It is this notch which is the characteristic feature of the syphilitic incisor, and to which the name of Hutchinson is applied.

Fournier refers to the importance of the mulberry molar as a diagnostic sign in congenital lues. Karnosh says that the embryologic study of the first molar shows that while calcification of the enamel begins about a month before birth, such a deposit is limited to three or four isolated caps or spiculae and that it is never so advanced at birth that these cusps are well united by calcified layers. It is apparent, then, that a hypoplasia of the cusps cannot be attributed to intra-uterine disturbance. A further study of the development of the molar crown shows that the bulk of the occlusal surface is laid down during the first year and that the cusps do not attain their full size until well into the second year. At this time, therefore, calcium deficiencies are likely to produce the greatest degree of distortion. Syphilitic hypoplasia of the first permanent molar should be seen immediately after its eruption, if one would understand the descriptive term, "mulberry molar," because early caries starts in such teeth and the appearance rapidly changes.

The tubercle of Carabelli or pseudocusp is regarded by a few syphilologists as an important sign of congenital syphilis and is supposed to be formed by a distortion of the healthy layers of enamel, these telescoping into one another and bulging outward. These tubercles lie below the level of the normal cusps and are seen on the inner aspect of the upper first molar.

Cannon says that he has observed Carabelli's tubercle more often in nonsyphilitic individuals than in those with congenital syphilis, and it is interesting to note that in his series of 202 cases of congenital syphilis, forty-five had the tubercle of Carabelli and only twenty-one had Hutchinsonian teeth.

Due to the paucity of cases at hand, no special effort was made to determine the percentage of heredosyphilitics having tubercles of Carabelli. On that account the figures of Cannon were used as a basis in drawing conclusions as to whether this percentage was abnormally high, and an indication of lues, or whether after all it fell within normal limits. In Cannon's report, 22.2 per cent of the cases with heredosyphilis had the tubercle of Carabelli.

ANALYSIS OF SERIES HERE REPORTED

In 326 successive dermatological cases in our clinic and office practice, in which the molars were present and intact and which were examined for Carabelli's tubercle, the figures obtained were rather interesting. In this series 21.4 per cent had the tubercle. As to the seventy cases in which the extra cusp was present, it was found to be bilateral in twenty-three, and unilateral in forty-seven. Also it occurred on the right side in thirty-five cases, and on the left side in twelve.

There were 159 cases with acquired syphilis, and 20.7 per cent of these had the tubercle of Carabelli, and in two of these it was found on the right side only.

In one pair of twins visiting the clinic, because of verrucae, the tubercle occurred bilaterally in both, but it was more pronounced in one than in the other.

Wide spacing of the incisors was frequently observed, but seemed to have no special significance.

In a young girl with lupus vulgaris of the arm, serrated lower incisors were present, in addition to the tubercles of Carabelli.

Where it was possible an attempt was made in those cases where the tubercle was present to discover whether during infancy they had suffered from any severe illness. The object of this was to determine whether nutritional disturbances or infectious processes affected the development of the teeth. The large number of affirmative answers agreed in the main with the figures gathered by other observers on the subject.

Although various statistics seem to warrant the opinion that alopecia areata and the tubercles of Carabelli should be listed among the minor diagnostic signs of heredosyphilis, yet, as Sabouraud has shown, their existence in the same individual, and especially in the child, should not be entirely disregarded, or at least not until disproved by the Wassermann test.

The value of the interpretation of the various dental stigmata in any given case depends in a measure upon the keenness and the clinical experience of the observer.

CONCLUSIONS

The statistics compiled from our own 326 cases show that such minor diagnostic signs as the tubercle of Carabelli, frontal bosses, wide spacing of the teeth and alopecia areata, unless confirmed by the Wassermann test, are of little value in the diagnosis of heredosyphilis; but are indicative of some intercurrent infection or nutritional disturbance during early infancy and, as such, are only of general interest.

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DISCUSSION

Harold K. Faber, M. D. (Stanford University Medical School, San Francisco).—Doctor Way has done a service to clinicians interested in heredosyphilis by more accurately defining the significance of one of the dental abnormalities hitherto supposed to be suggestive of that disease. Carabelli's tubercle can now be regarded as having little diagnostic value, as indeed might have been suspected, since it belongs to a group of minor developmental anomalies lacking the hypoplastic defect of enamel which is the more characteristic feature of congenital syphilis. The present paper performs another service in reëmphasizing the fact that syphilitic changes occur in other teeth than the central incisors. They may, in fact, occur in almost any of the second teeth and, though rarely, even in the deciduous teeth. The variety of possible defects was

well described a few years ago by Stoll. It is uncommon for the central incisors (Hutchinsonian teeth) to be the only ones affected in any given case. The Moon or Fournier molar is undoubtedly present more often than is generally supposed, being frequently missed by the examiner because it decays so soon after eruption or because it is not carefully inspected.

Clinical observation in syphilis, perhaps even more than in other conditions of disease, has suffered in recent years from the availability of a reliable short-cut to diagnosis. It is good to see again a systematic clinical study such as Doctor Way has given us.

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M. W. Hollingsworth, M. D. (409 First National Bank Building, Santa Ana).—Doctor Way has brought to our attention the problems involved in making a diagnosis of congenital syphilis, on the basis of symptoms and signs which, though frequently present in that disease, are not necessarily limited to it. By the term, "nonspecific diagnosis," I assume Doctor Way to be excluding from our consideration such items as the actual demonstration of the spirochete, positive serological findings, and those clinical manifestations, such as Hutchinson's teeth, which occur in no other disease. This still leaves us a large number of findings to consider, and syphilographers here and there are devoting much time to the proper evaluation of each of these particular manifestations. E. and I. Beretervide studied the aortas of twenty-two congenital syphilitics and concluded a certain broadening to be more reliable than the Wassermann test. Shipley, Pearson, Welch and Greene arrive at the same conclusion regarding certain epiphyseal changes which they studied in three hundred fetuses and new births. Doctor Way has painstakingly reviewed the literature and made observations of his own on Carabelli's tubercle, concluding that the presence of this alone is not diagnostic of congenital syphilis.

In making a positive diagnosis from such circumstantial evidence it is the plurality of such findings in one patient, rather than the individual importance of a single item, that is significant. Most of these manifestations are developmental defects, and in the differential diagnosis a knowledge of rickets, scorbutus, and endocrine imbalance is essential. After excluding other possible etiological factors the problem resolves itself into how many or how few of such nonspecific symptoms are necessary to be conclusive.

Doctor Way mentions that Stokes regards frontal bosses, aplasia of the incisor teeth, scaphoid scapula, early epitrochlear adenopathy and a high, narrow palatine arch alone insufficient for diagnosis. But add to this a maternal history of frequent miscarriages or stillbirths or defective relatives and an entirely different significance is attached to such findings. L. von Zumbusch says we should consider congenital syphilis when, from no obvious cause, a child is underweight, anemic, thin, weak, and has a wizened face. As a last result we can always apply a therapeutic test in a patient with absent specific manifestations but who has so many nonspecific symptoms we cannot ignore them.

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Kendal Frost, M. D., (1930 Wilshire Boulevard, Los Angeles).—Doctor Way is to be commended for his painstaking observations on these abnormalities which have been frequently described by enthusiasts as infallible signs of congenital syphilis. In these days of laboratory diagnosis it is refreshing to hear a paper given which has been based on careful clinical considerations.

In our own series of cases the so-called latent syphilis occurs in the congenital as well as the acquired type of the disease. A considerable proportion of our patients present none of the classical signs dependent on maldevelopments of bone. In this group the diagnosis rests entirely on the family history, and on the Wassermann reaction.

Doctor Hollingsworth's point of consideration of the entire family background as an important factor in the diagnosis of congenital syphilis is well taken, and should be emphasized.

MEDICAL AND OTHER EXPERT SCIENTIFIC TESTIMONY

By A. F. Wagner, M. D.
Los Angeles

EXPERT testimony, be it medical, dental, chemical, engineering, or other purely technical testimony, is usually necessary in court trials in which scientific problems become important issues. The jurors, who render the final decisions, should be entitled to unbiased, competent and honest opinions of the expert witnesses. Under the present civil and criminal procedure, however, the manner in which such testimony is procured and used at the trial often makes this testimony practically valueless, absurd, or something worse. A few examples will indicate how true this is.

AN EXAMPLE OF THE PRESENT DEPLORABLE SYSTEM

Consider first a murder case in which the accused pleads "Not guilty by reason of insanity." The first requirement is to determine whether the accused is sane or insane. How is this done? The prosecution hires two or three psychiatrists, or alienists as they are usually called, to examine the defendant, and the defense hires an equal number. Unless the defendant is so obviously insane that his mental condition is apparent to everyone, the alienists for the prosecution invariably find and report him to be sane, and the alienists for the defense find and report him to be insane and irresponsible for his acts. Does anyone recall a case in which the opposing alienists agreed? One might imagine that the accused had a dual personality, enacting the rôle of an insane person whenever the defense alienists appeared to examine him, and that of a sane individual when the prosecution's alienists appeared. Whatever the reason, it is a foregone conclusion that the prosecution alienists find such a defendant sane and the defense alienists find him insane.

Would it not save much time and money if the attorneys or the judge should say to the jury at the beginning of the trial, "Members of the jury: Three experts have found this defendant to be sane and three have found him to be insane," and then dispense with the further services of the experts and proceed with the ordinary or non-expert testimony? Would the jury be in any greater predicament through such procedure than it would be later, after having listened for three weeks or more to the expert testimony in detail? As a matter of fact, after listening to a prolonged legal battle in which one side asserts that the accused is suffering from paranoia, dementia praecox, epilepsy, catatonia, dermatographia, delusions, hallucinations and many other abnormalities, and in which the other side strenuously denies that the defendant is suffering from any of these maladies, the jury, composed of laymen having no scientific knowledge of these matters, is no better informed in regard to the true mental state of the defendant than it was at the start. In addition, the jurors are now mentally and more or less physically exhausted. These jurors are now expected to properly evaluate the contradictory

scientific testimony, to distinguish between the truthful and the untruthful or partisan witnesses, and to render a true verdict according to the evidence. No jury of laymen can meet these requirements, and should the jury system be abolished, as advocated by some, no judge could meet these requirements unless the jurors or the judge were competent and experienced psychiatrists.

Education and experience in other fields are of little value here. What will a jury do in such cases? They will do the only thing they can do—disregard all or most of the expert testimony and depend on other testimony upon which to base a conviction or acquittal. The testimony they ought to use they cannot understand. They may be more favorably impressed by this or that expert and venture a guess that he may be right, but it is a guess, nevertheless, and a tremendously tragic injustice may be done. Such deplorable and futile methods should long ago have been abolished.

What is the remedy? The only remedy that will be of any benefit to the jury is to pass a law requiring the court to select two or three experts, to be paid by the state, who will examine the accused, uninfluenced by the consciousness that they are employed by either side, and who could be relied upon to give unbiased opinions. The prosecution and the defense would still retain the right to employ their own experts, but this practice would soon be practically discontinued as it was in the State of Massachusetts under the operation of the Briggs law passed in 1921, as shown in the following brief résumé of this law and its results.

EXCELLENT RESULTS OF THE BRIGGS LAW OF MASSACHUSETTS

The Briggs law provides that every person indicted for a capital offense, and every person previously convicted more than once of a felony or of any other offense who is bound over for trial in a superior court, shall be examined by representatives of the Department of Mental Diseases, and the report of this board shall be filed and accessible to the court, to the district attorney, and to the attorney for the defense. In November 1927, Briggs, the author of this law, in an address before the National Crime Commission, stated that, when first proposed, many opposed its adoption, claiming that it was impractical and unconstitutional but, since its passage, it has proven to be so satisfactory to both prosecution and defense that its constitutionality has never been contested. Although the report is merely accessible, it is naturally bound to be favorable to one side or the other, and therefore either the prosecution or the defense will call for the report and summon the examiners when the trial takes place. Each side can hire its experts as before the passage of the law, but this practice is seldom resorted to, since the jury apparently recognizes the absolute neutrality and reliability of the experts from the Department of Mental Diseases as against the probable bias and therefore unreliability of the experts hired by either or both contending parties. The juries in Massachusetts have at last been given the benefit of competent and unbiased opinions to guide them in their final decisions, and have been relieved of the unjust burden and impossible task of discovering the truth when the testimony is contradictory.

As to expense, "The general administration of the law is carried on by the already existing machinery of the Department of Mental Diseases. The fee allowed is $4 per day for each of the examiners [two], plus a small mileage allowance." It eliminates the high cost of expert testimony which district attorneys in other states incur and which is paid by the people. It relieves the defense of the necessity of hiring high-priced experts, an incalculable boon to the defendant if he is poor or of moderate means. It places the indigent and the wealthy defendants upon an equal footing. If the department experts find the accused to be insane the court usually commits him to an asylum and there is no trial at all. It saves the state many hundreds of thousands of dollars.

POSSIBLE EXTENSIONS OF THE BRIGGS SYSTEM

This remedy is so sensible, just and economical, that one wonders why it was not adopted long ago. Why should it be limited to cases in which the plea of insanity is introduced? Is it not equally important that when the cause of death is disputed that this should also be inquired into and determined by neutral experts?

Consider the main facts and circumstances of a case that was tried in California. A man who had been drinking intoxicating liquors, was knocked down six or eight times in the presence of an eyewitness. He became unconscious a number of hours later, never regained consciousness, but died in a hospital some forty-eight hours later. The accused was charged with murder and pleaded "not guilty." The defense claimed the deceased had died of alcoholism, the prosecution claimed he died of the blows administered by the defendant. Both sides hired medical experts. After a prolonged legal battle, the net result of the testimony, so far as the jury was concerned, amounted to simply this: The prosecution experts maintained that death was due to the blows administered, and the defense experts claimed that death was due to alcoholism. The jury might as well have flipped a coin, saying, "Heads, the deceased killed himself; tails, the defendant killed him." Yet the determination of the cause of death was the most important point in the whole trial. Until this was decided, other testimony was immaterial. To call upon a jury in such a dilemma to make a decision involving the life or liberty of a human being is a crime in itself.

In another recent case a man was tried for murdering his wife by administration of arsenic and, as happens in all such cases, the prosecution experts testified that death was due to arsenic, and the defense experts testified that death was due to natural causes. This trial lasted three weeks. If the court had appointed two or three neutral experts to examine the postmortem findings and the chemists' reports, with full authority to investigate all the facts necessary to establish the cause of death, with no other motive of any kind except the discovery of the truth, the cause of death would have been determined in a short time and the trial would have lasted three days instead of three weeks, since nearly all of this time was consumed in piling up contradictory expert testimony.

This unnecessary waste of time explains in part why the supply of trial courts in some parts of our state is always short of the demand. Los Angeles County, it is said, has more trial courts than any other county in the nation, a distinction of which Los Angeles need not be proud.

The examples just referred to are not isolated cases, but are typical of all in which the physical

cause of death is in dispute, whether it be charged that death was due to violence, poisoning, criminal abortion, or malpractice. Such cases are far more frequent than those in which the plea of insanity is made, and therefore, from the numerical standpoint, it is far more important that courts should be required by law to appoint neutral experts, because the lives and liberties of many more individuals are in jeopardy in such cases than in those in which insanity is the plea.

BLAME FOR FAULTY SYSTEM RESTS WHERE?

Who is to blame for the deplorable situation that obtains in all court trials in which expert testimony is employed? The lawyers blame the experts and the experts blame the lawyers. Both are partly right and partly wrong. The lawyers claim that doctors acting as expert witnesses never agree. But if they did agree, the lawyers would never hire them. In fact it would be absurd to expect the attorneys of one side of the contest to hire experts and pay them costly "expert fees" merely to help the other side to win its case. Of course, if every member of the medical profession were scrupulously honest and thoroughly competent there would be little or no disagreement. In such event the prosecution or the defense would be left without expert witnesses, but why should anyone expect the medical profession to be the only perfect profession in the world? Does the legal profession claim perfection? On the whole there is no profession that is more honorable, more ethical, more scientifically efficient, more progressive and more devoted to the general welfare of humanity than the medical profession, but there are charlatans and quacks in its ranks, just as there are shysters among lawyers and rascals in all other professions and vocational groups.

The reason we have the disgraceful spectacle of experts pitted against experts in nearly all trials in which scientific testimony is used, is apparent when we consider that many of the best men in their professions are unwilling or refuse to act as expert witnesses in what they have come to regard as "merely a legal game." Of the remainder who are willing to enter the arena, those who are scrupulously honest will align themselves only on that side of the contest which represents truth and justice; and those who are venal or unscrupulous align themselves with the other side. Lawyers and doctors of high character, ability, and professional ethics will not stoop to such practices, but unfortunately there are others who will, and a procedure which theoretically ought to be useful in developing the truth in its practical application breaks down.

MEDICAL PROFESSION MISREPRESENTED IN MANY COURT TRIALS

The higher the fee that is offered the greater becomes the temptation for the witness to become partisan. The trial now becomes a game in which the winning of the contest becomes paramount, the discovery of the truth becomes a secondary matter. The public is led to believe, by reading the contradictory evidence in the newspapers or by hearing the witnesses in the courtroom, that all doctors are incompetent or venal. The truth of the matter is that the profession is not represented but misrepresented in court trials, and this situation will continue so long as each side of the contest is permitted to hire its own experts unchecked by the appointment of neutral experts by the court. A law making it necessary for the court to appoint competent men to act as neutral experts is the only way in which the present deplorable condition can be remedied. Both sides could still be permitted to hire their own experts, but there is no doubt that, in the maze of contradictory evidence, the jury would rely upon the neutral experts. The hiring of experts by one or both sides of the contest would soon be discontinued, as it virtually has been in Massachusetts under the Briggs law.

APPOINTMENT OF NEUTRAL EXPERTS

Should a law be enacted requiring the court to appoint the experts when such are needed in the trial of any case, it is, of course, highly important that such witnesses be well qualified. To this end the judges could and should consult sources of information known to be reliable and disinterested, such as the State Board of Medical Examiners, the various state and county medical associations, or other sources. This would serve to eliminate men well known among their professional brothers as incompetent, erratic, and unreliable, as well as those seeking notoriety and financial gain. The worthy men in any profession are always well known and, with intelligent care, competent and reliable men can readily be secured. At present any individual, regardless of his standing in his profession or his reputation for truth and honesty, may qualify as an expert and cannot be challenged unless he has actually been convicted of a felony. Our courts are practically the only institutions that will recognize an individual as competent merely upon his own representations.

COST OF NEUTRAL WITNESSES TO THE STATE

The cost to the people of the state would be no greater and probably much less than that which the people now pay for experts employed by the district attorney. Objection has been made by some who are opposed to court-appointment of experts, that medical and other sciences have not yet reached such degrees of exactness that entire confidence could be placed in the opinions or wisdom of those who profess to have specialized knowledge in these subjects. But if well-qualified experts cannot inform the jury of the truth, so far as it is humanly known, who can? It ought to be evident to any candid mind that unbiased, neutral men, uninfluenced by partisan motives while making their investigation or while giving their conclusions are much more reliable than when individuals are pitted against each other on opposite sides of the contest.

Presumably those who raise the above objection prefer to have the expert testimony presented in its worst possible form: that is, to have their scientific facts buried in a mountain of contradictory evidence and let a jury without scientific knowledge try to dig it out. It would be better to dispense with expert witnesses altogether. The jury system, in spite of criticism, is still the best

method of deciding legal disputes, provided the jurors are not called upon to decide scientific matters they cannot possibly understand. Let them be given facts and not scientific problems and they can mete out justice in as unerring a manner as can any other class of individuals.

The suggestion that juries should be composed of scientific men and women, as, for example, psychiatrists in cases in which the plea of insanity is made, chemists when chemical problems are to be solved, etc., is also impractical. Only about eight or ten counties in the whole country could produce twelve psychiatrists or qualified engineers or other technical experts. In this state there is one county which has but one registered physician. If scientific juries should replace our present juries, 90 per cent of the nation's counties would have to borrow or import their juries.

HOW THE MEDICAL PROFESSION CAN HELP

What can the medical profession do to place medical expert testimony upon a respectable footing and to offset the unjust criticism heaped upon the profession because of the conduct of a few of its members?

In the first place the various county societies and the state medical association can make their views known to the legislature and to the State Crime Commission by resolutions or other means.

The State Crime Commission has presented a bill* to the legislature, which is now in session, in which it is provided that, in cases in which the question of insanity is introduced as an element of defense, the court shall select and summon experts. This bill does not go far enough. It should include all cases in which expert testimony is needed, but it is a step in the right direction and should receive the support of all physicians.

In the second place, medical associations could well follow the example of the State Medical Association of Missouri in recently suspending an offending member, who presumably gave expert testimony in a California trial, the state association thus confirming a similar action taken by one of that state's county associations. Such official action would enable the opposing counsel in a subsequent trial to disclose to the jury the professional standing of such a suspended member, should he presume to continue to act as an expert witness. A standing committee of ethics or scientific standards or of expert medical testimony might be desirable. Such a committee could function in the same manner as the committee on application for membership and thus aid in preventing physicians from falling below certain minimum requirements in regard to ethics and generally accepted standards of scientific attainments. Such a committee could be of service to the courts, should the bill above mentioned become a law, not to suggest to the courts whom they should appoint as experts, but to inform them who is unfit to act in this capacity.

1625 South Wilton Place.

* Senate Bill, No. 207. So-called expert medical testimony, with its often lurid presentation in the daily press, has had much to do with giving many citizens an opinion that the medical profession is animated by both low scientific and economic standards. Is it not time for the profession to take stock and determine how the reproaches cast upon it by unworthy members of the guild may be stopped? At the present time, would not support of the measures advocated by the Crime Commission be a step in the right direction?

SCHOOL EYE SURVEYS*

REPORT ON A GRAMMAR SCHOOL (FIVE HUNDRED AND SIXTY-SIX CHILDREN)

By Lloyd Mills, M. D.
Los Angeles

METHODS of examination of school children should be checked from time to time and an unprejudiced opinion given as to their efficacy and value in the recognition of ocular disease and of abnormalities of structure and function. School boards are importuned from all sides to allow extremists of all kinds to introduce their peculiar methods of examination and treatment into our schools, and it is worth while to determine to what extent that pressure for the introduction of unusual and unproven methods is the result of defects of our present system, or merely a desire on the part of irregular groups for self-aggrandizement at the expense of our school children.

Under the auspices of the Eye and Ear Advisory Board of the Los Angeles School District, an examination of five hundred and sixty-six school children of grammar-school age was undertaken to that end during the spring of 1928.

METHODS USED

The methods used in examination were as follows: The visual acuity of each eye was taken, using the Allport combination letter and illiterate chart, which has proved so valuable in school work. The test introduced by the author ("Eyedness and Handedness," *American Journal of Ophthalmology,* December, 1925) for determining the master eye, has proven in actual practice of great value, not only in showing which eye is dominant, but in eliciting the convergence near point, the pupillary action, and in giving a gross but practically an excellent check upon the presence of ocular muscle normality or of convergence or divergence excess. This test, while not exact in occasional instances, has been checked upon by measurements with the phoroptometer in over twenty thousand examinations and, in the main, gives an accurate index of the presence of esophoria or exophoria, if in any way excessive.

This test, as used in this survey, consists in having the child face the examiner, whose back is toward the light. A plane mirror is placed midway between the eyes and about six inches distant and is steadily and fairly rapidly brought toward the eyes, the child fixing the aperture. Normally, in the adult, the master eye maintains undeviating convergence upon this aperture while the nonfixing eye diverges at about two inches from the eyes. Children, especially younger children with their abundance of convergence power, brought into play by their interest in any new procedure, quickly get the trick of maintaining fixation to an extreme degree of approximation

* A digest of this paper was presented to the Eye and Ear Advisory Board of the Los Angeles School District.

of the test object. To prevent this the object suddenly is put in place before them at a distance not greater than six inches and, if divergence does not occur during the test, the mirror is held in place for a few seconds until one eye yields. If this does not occur the mirror is reversed and the aperture in the dull back is presented for fixation. At times the interest which these children show is so great that they have to be cautioned to relax, to stop straining, and to merely look at the hole instead of endeavoring to see through it. In a small but definite proportion of cases, practically all of which are esophoric, ocular dominance must be determined by estimation of the cyclophoria with the Maddox rod and other special measures, the nonfixing eye being subject to the greater torsion.

The visual acuity of children who wore glasses was examined with and without their correction. Any evidence of ocular pathology was recorded; and where defective vision or muscle function or pathologic changes existed, inquiry was made into the presence of symptoms denoting eye-strain. All cases having these defects, with and without symptoms, were referred for a complete eye examination or treatment, and wherever indicated the ophthalmoscope was used.

VISUAL ACUITY

A total of five hundred and sixty-six children between six and twelve years of age were examined. A total of four hundred and sixty-eight, or 86.2 per cent, had a visual acuity of 6/6 or better in each eye; sixteen, or 2.8 per cent, had 6/6 in one eye and 6/7 in the other; sixty-two, or 11 per cent, had 6/7 in each eye. The balance of the group were scattered through the entire practical visual range, the lowest acuity being 6/60 in each eye in two cases, one with nystagmus since infancy and the other a case of progressive myopia who had been given glasses one year previously.

It is of interest to note that, in general, the master eye had the better visual acuity in hyperopia and the poorer visual acuity in myopia, a condition already noted previously with regard to ocular dominance.

OCULAR MASTERY

The right eye was the master in three hundred and ninety-one children, or 69.1 per cent. The left eye was the master in one hundred and thirty-seven, or 24.3 per cent. No mastery was ascertained in thirty-eight children because of excessive adduction in thirty-one, or 5.3 per cent, and abduction in seven, or 1.2 per cent. These findings correspond with all of the previous work done by Parson ("Left-Handedness," Macmillan Company, 1924) and Mills ("Eyedness and Handedness," *American Journal of Ophthalmology,* December 1925, and "Unilateral Sighting," *California and Western Medicine,* Vol. 28, No. 2, February 1928), in that one person in four is born left-handed and sights with the left eye, but this fundamental fact is concealed by early training to right-handedness. The degree of this concealment is shown by the fact that only seventeen, or 3 per cent out of five hundred and sixty-six, had retained left-handedness, while one hundred and thirteen, or 20 per cent, who should have remained left-handed, had been trained consciously or otherwise, on the part of their parents, to right-handedness. Ambidexterity was found in but three children, all with normal vision and one having a facial tic with a conjugate deviation to the right and up.

MUSCULAR IMBALANCE

Normal muscle action was found in four hundred and seventeen, or 73.7 per cent; excessive convergence was noted in one hundred and four, or 18.3 per cent. A total of eighty-six, or 82.7 per cent of this group showed slight to moderate excess. A total of eighteen, or 17.3 per cent, were decidedly convergent, the group included eight cases of alternating convergent strabismus. Some forty-five children, or 8 per cent, showed an increased abduction, usually of one and rarely of both eyes; thirty-nine of these, or 86.7 per cent, were slightly divergent; and six, or 13.3 per cent, were decidedly divergent, four of the last group being practically exotropic.

Symptoms occurred in thirty-one cases of adduction excess and in ten cases of abduction excess, totaling 7.2 per cent of all children examined, although 26.3 per cent, or about one case in four of all children, had muscular imbalance in some form. It has been noted before, but is worthy of repetition, that the apparent convergence excess is normal during the period of life included in this test, and we have erred, if at all, in including as convergence excess some cases which probably would not be so classified by finer methods of testing. Below the third grade, fixations are more or less uncertain, concentration not yet having been learned. Beginning with the third grade and above, the pupils appear more nervous and more intense, the spirit of work and competition having replaced the elements of interest and pure fun which are so evident in the youngest classes.

CORRECTION OF DEFECTS

Glasses were worn by twenty-nine children for compound hyperopia in sixteen; for hyperopia in four; for hyperopic astigmatism in three; for mixed astigmatism in three, and for compound myopia in three. Some six children, who were wearing glasses for over two degrees of myopia or hyperopia, and who had been given glasses within a year, showed decided reduction in vision, indicating that children with moderate to high errors of refraction should be examined yearly, at least. All cases having vision of 6/7 or less were referred for examination. Cases of normal vision, but with symptoms referable to the eyes, were also referred for examination. It was noted that there was a decided relation between defective visual acuity and muscular defects, this relation being present in fifty-two out of eighty-three cases referred for more definite examination. It may be considered as a practical point that a reduction in visual acuity is associated with defective muscular function either as cause or effect. Experience shows that relief of the visual defect nearly always brings relief to muscular

over- or undereffort, and it is worthy of note here that no system of treatment by prism or other exercise will keep the visual mechanism in permanent good function without correction of the underlying visual fault.

The pathologic changes noted consisted of four cases of styes; acute conjunctivitis in three children; marginal blepharitis in two; phlyctenular conjunctivitis in one; follicular conjunctivitis in two; congenital nystagmus in one; alternating convergent strabismus in eight; divergent strabismus in four; and a large conjunctival cyst in one. These conditions had all been recognized by the school nurse or teachers, and were either under treatment or treatment was being planned.

It was found that visual examination had been done in all cases by the regular school physician and nurse, with the exception of children recently transferred. Practically none of these new arrivals had been examined, and it would seem wise to suggest that each transferred child should bring with him to his new school a record of his last physical examination. It was noted that only one case of frankly bad head posture existed in the entire group examined.

It is of interest and of possible significance that five out of six very poor writers, chosen at random, were crossed dextrals, *i. e.,* were born to have left-sided mastery, but were converted to a right manuality with or without their parent's knowledge. This conversion should never be done intentionally without medical supervision.

CONCLUSIONS

1. The present system of eye examinations among children of grammar-school age, where there is a modern system of oversight is effective, save in the case of recent transfers and among certain children already wearing glasses. These are picked up by the system in time, but may be overlooked for considerable periods unless some method of dealing with them is introduced.

2. Only one child in fourteen, or 7.2 per cent, had symptoms referable to the eyes.

3. No ocular or visual conditions were found in this survey which are not capable of correction or of full relief by the well-recognized and proven methods known and used by all regular physicians who specialize in ophthalmology.

4. All children who have refractive errors of two or more degrees should be retested annually. This is as necessary in hyperopia as in myopia.

5. There is little or no excuse for the existence of crosseyedness in children of school age. The condition is capable of correction save in the rare paralytic cases, and even these can be improved greatly.

6. We suggest, in view of the very small personnel usually devoted to eye examinations, that all present effort should be centered upon the discovery and the correction of gross defects of ocular structure and function as shown by poor vision or by definite symptoms of eye-strain. Methods which are unproven or which are merely experimental have no place in any system of examinations or treatment devoted to the care of our public-school children.

COMMENT ON QUESTIONABLE PROCEDURES

About 25 per cent of all the eye work done by nonmedical workers in the health clinics of public schools consists of duction treatment with prisms and of the employment of prisms in the endeavor to determine latent hyperopia, latent phorias and to reduce the strength of myopic correction needed to give 6/6 vision. This work admittedly is experimental and unproven. Its results mainly are temporary, often have not the slightest functional value, and usually there is no influence upon the underlying local or general condition which led to the structural or functional defect. Without exception the conditions in which these questionable measures are applied are correctable or remediable by procedures which are well recognized, well tried, and thoroughly approved by ophthalmologists. They require no experiment and waste neither time nor money.

As experienced physicians we have seen too many cases of ocular dysfunction due to local and general disease, and as surgeons we have noted the congenital faults of tendon insertion and of muscle structure which no amount of treatment short of surgery could ever modify to any practical extent. There is no substitute for a medically trained mind in the treatment of disease. If persons cannot qualify to the high standards of the medical profession they have no moral right to attempt to apply inferior and ineffective substitutes, designed to overcome their educational and professional handicaps, and especially in connection with our school children.

It should be stated with emphasis that there is no substitute for retinoscopy under complete mydriasis in any doubtful refractive or ocular muscular condition. The numberless measures introduced as substitutes for this scientific procedure, such as those mentioned above, fully confirm this statement.

It was noted in the above study that 7.2 per cent of all the children examined had symptoms, while 26.3 per cent had some form of ocular muscle imbalance. The latter figure corresponds with the 25 per cent of "new cases requiring orthoptic treatment" reported by nonmedical workers, and leads to the assumption that a muscle imbalance is considered by them as sufficient grounds for wasting public time and means, regardless of symptoms. In the present overworked state of all departments of school health systems, these prism treatments of symptomless cases should be discontinued, on the fundamental grounds that the time so spent is urgently needed for the discovery and relief of the many more vital cases of actual visual defect and symptomatic disorder.*

609 South Grand Avenue.

* At the meeting of the Eye and Ear Advisory Board of the Los Angeles City Schools held on July 11, 1928, the following resolution was passed unanimously:

Resolved, That treatment of patients with prisms known as orthoptic exercises or treatments be discontinued, on the ground that with the small personnel available for eye examinations, it is imperative that attention be centered upon the recognition and treatment of eye diseases, errors of refraction, and other structural defects; and that this policy be in force until such time as an increased personnel might modify the present scope of activity in this particular line. This ruling is not intended to exclude the use of prisms in testing for muscle imbalances of various kinds.

CERTIFICATION OF LABORATORIES*

SCOPE OF METHODS USED—LIST OF CALIFORNIA LABORATORIES NOW CERTIFIED

By W. H. Kellogg, M. D.
Berkeley

IT is now five years since the State Board of Health authorized the director of the State Hygienic Laboratory to proceed with the inauguration of a system of inspection and certification of diagnostic laboratories, both public and private, or governmental and commercial.

CALIFORNIA METHOD OF VOLUNTARY CERTIFICATION

In the absence of any law specifically authorizing such work the scheme was entirely voluntary on the part of the laboratories participating. It is true that the board possibly has authority, under Section 2979a of the Political Code, to inquire into the diagnosis of communicable disease by laboratories. Since this authority would be subject to court rulings, it seemed to the board that a voluntary plan might possibly accomplish as much, or more, than a specific law on the subject.

The improvement of laboratory service is a regular consequence of better understanding on the part of physicians in general of the shortcomings of the laboratory service at their disposal. Those members of the profession who are engaged in laboratory diagnosis know only too well to what extent their nonlaboratory colleagues are at the mercy of incompetent laboratorians. No restriction whatever has been placed on the establishment of a diagnostic laboratory. Any layman who by reason of a brief sojourn in some type of laboratory considers himself or herself a skilled technician, may set up a laboratory.

Many laboratories of questionable worth have sprung up and are receiving the support of the medical profession. Board of Health laboratories are sometimes in the hands of technicians appointed for political reasons, rather than personal ability.

As director of the Bureau of Communicable Diseases, including the Hygienic Laboratory of the State Department of Health, the writer has been in a peculiarly favorable position to observe the alarming extent of incompetent laboratory service in California. That long and careful preparation is needed by technicians is not appreciated by many physicians. This is evidenced by the large number of office nurses who are running laboratories in a corner of the office of their employers. Occasionally I receive a request from a physician that I take his office girl into the laboratory for a couple of weeks in order that she may learn to do Wassermann tests, etc. These men do not think, or they would realize that, while a Wassermann test may be taught mechanically in a couple of weeks, the principles of immunology involved cannot possibly be understood. The technician will be as competent in serology as the untrained and ignorant midwife would be in the presence of a serious case of dystocia. A competent laboratorian requires as much preparation in the basic sciences as does the practitioner in any other specialty of medicine. It was this knowledge of the laboratory situation that brought about the inauguration of the system of approval of laboratories. The certificate of approval displayed by certain laboratories, or its absence from the walls of others, has undoubtedly had a favorable and educational influence with physicians.

DETERMINATION OF ELIGIBILITY FOR APPROVAL

The method pursued to determine whether or not a laboratory shall be approved is of interest and will be briefly described.

In signing an application for approval the director of the laboratory agrees to keep a system of records that permits of the ready finding of any specimen and its correlation with the report, the physician and the case. Financial records are not inquired into. The laboratory agrees to retain and file for a definite period all diagnostic slides, both positive and negative. It is also agreed that check specimens from the state laboratory will be examined and reported from time to time, and that the laboratory shall be open for inspection by representatives of the state department during business hours. Before the certificate of approval is issued, an inspection of the laboratory is made and the physical equipment checked up. The qualifications of the director are inquired into, not by examination, but by interview and consideration of his education and experience. The methods used in the laboratory must be satisfactory, but not necessarily the same as those used in the state laboratory. The certificate issued sets forth the particular examinations that appear to be performed satisfactorily in the laboratory, and tests not mentioned on the certificate are either not done in that laboratory, or are not done satisfactorily, or are not tests that come within the scope of our inquiry. This latter group includes the strictly clinical laboratory procedures that have no bearing on the public health, such as tissue work, blood chemistry, etc.

One requirement rigidly insisted upon in the approval of laboratories is that the director of the laboratory, if not the owner (in the case of a private laboratory), shall have absolute control of all technical matters; such as the methods of examination and the decision as to what examinations shall be undertaken.

The management of laboratories by nonmedical men is deprecated by the board, although in the beginning a few private laboratories owned by laymen and run by their owners were approved. The board recognizes a difference in this regard between private and official or Health Department laboratories. In the latter, when a lay technician is in charge, the health officer is regarded as the responsible head, although the principle of nominal supervision by a medical man not especially experienced in laboratory work would not be regarded as satisfactory in the case of a private laboratory. However, the more limited field

* Read before the Section on Pathology and Bacteriology of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

of the public health laboratory and the more standardized character of the examinations plus the fact that doctors for such positions are scarce, justifies the ruling in this instance. But with commercial laboratories the ownership of the business by lay individuals or by a corporation and its management by laymen, with physicians occupying a subordinate position in the organization, is regarded by the board as undesirable, and approval ordinarily is not accorded such laboratories.

THE NEW LAW REGULATING LABORATORIES

The state legislature in 1927 passed an act requiring that all laboratories which are a part of the organization of county or city health departments must be approved by the State Board of Health. For the enforcement of this act the board has added to the regulations heretofore applying to all approved laboratories, both public and private, an additional regulation applying only to city or county laboratories. This new requirement is that each member of the staff of such laboratories, excepting student apprentices, must hold the certificate of proficiency in bacteriology or in serology, junior or senior grade. These certificates are issued to those who have demonstrated by examination that they are competent for the work.

EXAMINATION OF TECHNICIANS

The following is taken from the announcement of the last examination, and is reproduced here because it gives the scope of these tests:

"Notice is given that an examination of applicants for the certificate of proficiency in bacteriology and serology (senior grade and junior grade) will be held in Los Angeles and in Berkeley on May 19, 1928. Examinations will be held in Room 4 of the Hygiene and Pathology building on the university campus at Berkeley, and in the Los Angeles County Civil Service rooms, Hall of Records, Los Angeles.

"The subjects of the examination and the relative weights of the subjects on a scale of one hundred are: General Knowledge of Subject 50; Relative Capacity 16 2/3; Experience 33 1/3.

"The item 'General Knowledge of Subject' will cover questions relating to knowledge of principles and practice of bacteriology or serology, as the case may be, particularly as applied in a public health laboratory.

"The subject 'Relative Capacity' will include personality and general education, and will be based on a personal interview and the evidence presented by the paper.

"The subject 'Experience' will be rated as follows: seven years' first-class experience had within the last ten years in the field covered by the certificate in view, 100 credits; six years, 90; five years, 80; four years, 70; three years, 60; two years, 50; one year, 40. Deductions will be made when, in the judgment of the board, the experience claimed is not first-class. The degree M. D. from a recognized institution is equivalent to seven years' first-class experience. The degree D. P. H. or Dr. Ph. D. from a recognized institution, but unaccompanied by the M. D., is equivalent to three years' first-class experience. The degree A. B. or B. S. with a major in bacteriology or public health and in addition a course in public health bacteriology, both institution and course being approved for this purpose by the board, together with a period of practical experience of not less than three months in a public health laboratory specifically approved for this purpose, will entitle the applicant to credit equivalent to seven years' first-class experience. The degree A. B. or B. S. with a major in bacteriology, but without the special course and internship described in the preceding paragraph, will be equivalent to two years' experience.

"Those who make a passing grade, but do not give evidence of qualifications necessary for the responsibility of running a laboratory alone, will be given the junior grade certificate, entitling them to work under supervision only.

"Holders of junior grade certificates may present themselves at any regular examination and try for the senior certificate.

"Every public health laboratory must have at least one person on the staff who is in possession of the senior certificate.

"Separate examinations are given for and separate certificates issued for work in serology and work in bacteriology.

"Each type of certificate entitles the holder to engage in the line of work covered by that certificate only.

"Technicians in private laboratories are not required to hold these certificates.

"Application blanks may be had by applying to any of the administration offices of the State Department of Health (Sacramento, Forum Building; San Francisco, State Building, Civic Center; Los Angeles, 821 Sun-Finance Building). Application blanks must be accompanied by evidence substantiating claims as to experience, degrees, special courses, etc."

The policy is to ask questions in the written test that are eminently fair and practical and such that anyone who is reasonably well qualified will have no difficulty in answering.

The result so far has shown the value of a formal examination in the selection of laboratory workers and the response to the announcement of the second examination shows increasing interest on the part of both assistants and employers. The directors of some private laboratories are sending their employees for the examination and in some cases have qualified for the certificates themselves.

LIST OF APPROVED LABORATORIES IN CALIFORNIA

Following is a list of the approved laboratories as it stands at the time this is written:

Governmental—Cities: Alameda, Berkeley, Eureka, Glendale, Long Beach, Los Angeles, Oakland, Palo Alto, Pasadena, Richmond, Riverside, Sacramento, San Francisco, Santa Barbara, Santa Cruz. Counties: Kern, Los Angeles (Central, and branches at Alhambra, Compton, Pomona, Monrovia, Redondo, Whittier, San Fernando, Santa Monica, Belvedere,

and Glendale); Monterey, Orange, San Bernardino, San Luis Obispo; San Joaquin local health district.

Private Laboratories—Dr. Mona Bettin, Los Angeles; Drs. Brem, Zeiler and Hammack, Los Angeles; Drs. Butka and Pratt; Dr. John Chain, Eureka; Drs. Frey and MacKnight, Los Angeles; Drs. Holliger and Sheldon, Stockton; Frank Kolos, San Francisco; Dr. Marian Lippman, San Francisco; Fred I. Lackenbach (Lippman), San Francisco; Ruth Lane, Bakersfield; Mabel Little, Oakland; Dr. Bessie Martell, Santa Ana; Drs. Oliver and Knapp, San Francisco; Drs. O'Reilly and Wheeler, San Francisco; Dr. Rawson Pickard, San Diego; W. W. Reich, Ph.D., Oakland and Berkeley; Dr. E. H. Ruediger, Hollywood; Dr. Gustav Ruediger, Pasadena; Dr. J. R. Snyder, Sacramento; Edward I. Sugarman, San Francisco; Dr. A. H. Thompson, San Diego; Dr. E. Victors, San Francisco; Western Laboratories (Dr. G. Moore), Oakland; Ella C. Weston, Santa Barbara.

Hospitals and Clinics—Highland Hospital, Oakland; Santa Maria Hospital, Santa Maria; Alameda County Health Center, Oakland; Children's Hospital, San Francisco; Glendale Sanitarium, Glendale; Johnston Wickett Clinic, Anaheim; Mills Memorial Hospital, San Mateo; Moore-White Clinic, Los Angeles; Rideout Hospital, Marysville; San Joaquin General Hospital, French Camp; St. Luke's Hospital, San Francisco; Santa Barbara Cottage Hospital, Santa Barbara; Santa Rosa Clinic, Santa Rosa; Stanford University Hospital, San Francisco; Sutter Hospital, Sacramento; White Memorial Hospital, Los Angeles; Woodland Clinic, Woodland; Santa Barbara Clinic, Santa Barbara; Southern Pacific General Hospital, San Francisco; Peralta Hospital, Oakland; French Hospital, San Francisco.

When the certification of laboratories was first begun, approval was offered to a few representative hospitals and private laboratories in addition to the governmental ones. Since then no effort has been made to expand the list, but applications for approval have been received and acted upon.

There are still excellent laboratories, principally among the hospitals that have not applied for inspection.

Both the certification of laboratories and the licensing of technicians is limited at present to public health laboratory fields; that is, to the bacteriology and serology of the communicable diseases.

Hygiene-Pathology Building, University of California.

BOTANICAL SURVEY OF SAN FRANCISCO

By Albert H. Rowe, M. D.
Oakland

THIS survey of San Francisco has been prepared in order to facilitate the diagnosis and treatment of patients living in that city, who suffer with hay fever, asthma, or eczema, due to pollen sensitization. The survey is based on data obtained by two botanists, Miss Weisendanger in 1926 and Mrs. L. Dempster in 1927, and on my own personal observations during the last ten years. The data as tabulated indicate relative amounts of the various species in separate districts of the city, and the months of pollination. I am indebted especially to Professor Hall, who

Group 1.—*Trees*

SCIENTIFIC NAME	COMMON NAME	DURATION OF POLLINATION
Betulaceae		
Betula alba	Birch	February and March
Cypressaceae	(Cypress Family)	
Cypresses marcocarpa	Monterey Cypress	
Fagaceae	(Oak Family)	
Castanea chrysophylla	Giant Chinquapin	June, July and August
Fagus sylvatica	Beech	March and April
Quercus densiflora	Tanbark Oak	March and April
Quercus agritolia	Coast Live Oak	March and April
Juglandaceae		
Juglans californica	Cal. Black Walnut	April and May
Juglans nigra	Eastern Black Walnut	April and May
Juglans regia	English Walnut	April and May
Leguminosae	(Pea Family)	
Acacia spp.		January, February and March
Meliaceae		
Melia azedarach	Umbrella Tree	
Myrtaceae		
Eucalyptus spp.	Gum Tree	May and June
Oleaceae		
Fraxinus ornus	Flowering Ash	May and June
Fraxinus oregona	Oregon Ash	January and February
Platanaceae	(Plane Tree Family)	
Platanus orientalis	Oriental Sycamore	March and April
Pinaceae	(Pine Family)	
Pinus Radiata	Monterey Pine	Year round
Salicaceae		
Populus (several spp.)	Popular Cottonwood	February and March
Tiliaceae		
Tilia americana	Linden	July
Ulmaceae	(Elm Family)	
Ulmus spp.	Elm	January and February

Note.—The most of the above trees are found in considerable number in various parts of Golden Gate Park. Acacia, Oak, Birch and Sycamore predominate. The Pine and various species of Cypress are also very common and are particularly abundant in the Presidio and around Twin Peaks. In other parts of the city, particularly in the western sections, shade trees are occasionally found.

Group 2.—*Grasses*

GRAMINEAE Scientific Name	(GRASS FAMILY) Common Name	DURATION OF POLLINATION											Distribution by Districts. Numbers indicate relative amounts in each district. 1—Rare; 2—Scarce; 3—Common; 4—Abundant							
		January	February	March	April	May	June	July	August	September	October	November	December	Lake Merced	East of Park	North of Park	South of Park	City Proper	South S. F.	Southeast Section	Golden Gate Park
Festuceae	(Fescue Tribe)																				
Briza minor	Annual Quaking-Grass				1	1								2	1		1		1	1	2
Bromus carinatus	California Brome				1	1	1	1						2	2	2	2	1	2	1	2
Bromus hordeaceus	Soft Cheat				1	1	1							2	3	3	2		3	2	
Bromus maritimus	Seaside Brome				1	1	1							3		3	3				2
Bromus rigidus	Ripgut				1	1	1							3	4	3	3	3	3	3	
Bromus rubens	Red Brome				1	1	1									1	1		1		
Bromus unioloides	Rescue					1	1														2
Cortaderia argentea	Pampas (cultivated)						1	1													3
Dactylis glomerata	Orchard				1	1	1							3	3	3	2			1	3
Distichlis spicata	Saltgrass					1	1	1								1			2		1
Festuca microstachys					1	1								2	2	2	1		2	1	2
Festuca myuros	Rat's-Tail Fescue				1	1								3	2	3	3	2	3	2	2
Melica torreyana	Torrey Melicgrass				1	1	1							1							1
Melica imperfecta	Slender Melicgrass				1	1	1							1							1
Poa annua	Annual Bluegrass	1	1	1	1	1	1	1	1	1	1		1	3	3	3	3		3	3	4
Poa pratensis	Kentucky Bluegrass				1	1	1	1	1					1	1	2	1		2	3	4
Hordeae	(Barley Tribe)																				
Elymus glaucus	Western Rye					1	1	1						2	2	2					
Hordeum murinum	Farmer's Fox Tail				1	1	1							3	3	3	3	3	3	3	3
Hordeum sativum	Cultivated Barley				1	1	1							1			1				
Lolium perenne	Perennial or English Rye					1	1	1	1	1				3	4	3	3	3	4	4	4
Aveneae	(Oak Tribe)																				
Aira caryophyllea					1	1	1							1	1						2
Avena Fatua	Wild Oat				1	1	1							3	3	3	2	3	3	3	3
Notholcus Lanatus	Velvet					1	1	1	1					3	3	3	2		3	3	4
Agrostideae	(Timothy Tribe)																				
Agrostis verticillata	Bent					1	1	1						2	1	2	1	1			2
Agrostis spp.						1	1	1						2	3						3
Ammophila arenaria	Beach Grass					1	1	1						3					1		2
Lagurus ovatus	Hare's Tail					1	1	1							1	1					
Polypogon monspeliensis	Beard Grass					1	1							3	1	1	2	1	2		2
Stipa pulchra	Needle grass					1	1							2	1	1	1		2	1	2
Chloridaea	(Grama Tribe)				1	1	1														
Cynodon dactylon	Bermuda						1	1	1	1	1	1	1		1	2	2	1	1	1	2
Phalarideae	(Canary Grass Tribe)																				
Phalaris minor	Mediterranean Canary				1	1	1							2	1	1	1		1	1	2
Phalaris paradoxica	Gnawed Canary				1	1	1							1	1	1			1	1	2
Paniceae	(Millet Tribe)																				
Echinochloa Crusgalli var. Zelayensis	Water Grass					1	1							1							1
Tripsaceae	(Corn Tribe)																				
Zea Mays	Indian corn					1	1	1						1							1

has checked over my data in regard to frequency of distribution and duration of pollination of the various species.

The flora of San Francisco differs in certain ways from that of the east shore of San Francisco Bay, on which Oakland, Berkeley, and Alameda are situated. In my study of the latter region I reported the first all-year-round counts of atmospheric pollen in a large cosmopolitan area, together with a study of the morphological characteristics of the pollen grains and the botanical flora of the separate districts in the East Bay territory. The flora of San Mateo County is practically the same as that of San Francisco, though the relative amounts of the various species are greater out of the city.

The main difference between these two is in the presence of *Bromus maritimus, Franseria chamissonis,* and *Artemisia pycnocephala* in certain sections of San Francisco. These species are not found in the East Bay and must be taken into definite account in the treatment of patients who live in San Francisco, especially near the ocean. Patients who live or work in the closely built-up section of the city, especially Van Ness Avenue to the Bay line, are exposed to fewer pollens in less concentration than in the western districts, which explains the relief such patients experience during the day in the business districts. This is especially true of patients who live in Marin, Alameda and San Mateo counties and who work in San Francisco during the day. When strong north winds prevail, patients in San Francisco, even in the business districts, are exposed to pollens from Marin County, the flora of which is quite similar to that of San Francisco.

Golden Gate Park is productive of much pollen, especially that of grass which is carried to the residental districts toward which the wind is blowing. The heavy tree growth throughout the park

GROUP 3.—*Weeds and Shrubs*

SCIENTIFIC NAME	COMMON NAME	DURATION OF POLLINATION												Distribution by districts. Numbers indicate relative amounts in each district. 1—Rare; 2—Scarce; 3—Common; 4—Abundant							
		January	February	March	April	May	June	July	August	September	October	November	December	Lake Merced	East of Park	North of Park	South of Park	City Proper	South S. F.	Southeast Section	Golden Gate Park
Typhaceae	(Cat's-Tail Family)																				
Typha latifolia	Common Cat's-Tail					1	1	1						3						2	2
Urticaceae	(Nettle Family)																				
Urtica urens	Small Nettle				1	1	1	1						2						1	1
Polygonaceae	(Buckwheat Family)																				
Polygonum aviculare	*Wire Grass													2	2	2	2	2	2	2	2
Rumex acetosella	Sheep Sorrel				1	1	1	1	1					3	3	3	3				3
Rumex conglomeratus	Green Dock				1	1	1	1	1					2			2				2
Rumex crispus	Curly Dock				1	1	1	1	1					3	2	2	2	2	2	2	2
Rumex occidentalis	Western Dock				1	1	1	1	1					1		2	2		2	2	2
Rumex obtusifolius	Bitter Dock				1	1	1	1	1					1			2				2
Rumex pulcher	Fiddle Dock				1	1	1	1						1	2	2		2		2	2
Chenopodiaceae	(Saltbush Family)																				
Atriplex californica						1	1	1	1	1	1			1			1			1	2
Atriplex coronata							1	1	1	1										2	
Atriplex leucophylla					1	1	1	1	1							2					1
Atriplex patula	Spear Orache							1	1	1						3			3	3	3
Atriplex semibaccata	Australian Saltbush						1	1	1	1				2		1					2
Chenopodium album	White Pigweed					1	1	1	1	1				3	2	3	2	3	3	3	2
Chenopodium murale	Sowbane					1	1	1	1	1				4	3	4	3	4	4	4	3
Roubieva multifida														3	3	4	4	4	4	4	1
Salicornia ambigua	Pickleweed						1	1	1	1					1				3		1
Amaranthaceae	(Amaranth Family)																				
Amaranthus retroflexus	Rough pigweed						1	1	1	1				3	1		1		1	3	2
Plantiginaceae	(Plantago Family)																				
Plantago lanceolata	English Plantain				1	1	1	1	1					3	3	3	2	3	3	3	2
Compositae	(Sunflower Family)																				
1. Astereae	(Aster Tribe)																				
Erigeron canadensis	*Horseweed						1	1	1					3	3	3		4	3	4	2
2. Ambrosieae	(Ragweed Tribe)																				
Franseria bipinnatifida							1	1	1	1							1			1	1
Franseria chamissonis	False Ragweed						1	1	1	1				2		1					2
Ambrosia Psilostachya	Western Ragweed									1	1	1		2			2		2	1	1
Xanthium pennsylvanicum	Cocklebur						1	1	1	1				2	1	1	1		2	1	1
Xanthium spinosum	Spiny Clotbur						1	1	1	1				2	2	1	2	2	2	3	2
3. Anthemideae	(Mayweed Tribe)																				
Artemisia californica	Coastal Sagebrush							1	1	1	1			3		3	2				3
Artemisia pycnocephala	Field Sagewort							1	1	1				3		3	4				3
Artemisia vulgaris	Mugwort								1	1	1			3		2	2		2	1	3
Fagaceae																					
Corylus rostrata	Hazelnut	1	1	1										1			1				1
Cornaceae																					
Garrya elliptica	Silk-Tassel Bush		1	1	1									1							1

* Insect pollinated and unimportant in the production of pollenosis.

may act as a barrier to a certain amount of such pollen. No attempt has been made to list all the species of trees present in the park though the predominating ones are listed. Trees in other parts of the city, except in the Presidio and in the Twin Peaks and Forest Hills districts, are practically absent. The acacia trees grow in great profusion, and patients living near the park who are sensitive to acacia would need desensitization to prevent symptoms. The Presidio has many open grass stretches, especially in its southern part, which fact must be kept in mind in the treatment of patients in the region north of the park. The extensive pine growth in the park, and especially in the Presidio, is of minor importance to patients afflicted with pollenosis, since only an occasional individual is sensitive to this pollen. The westerly winds will also blow grass, tree, and weed pollens from the park district into the section east of the park.

409 Fitzhugh Building.

ETHYLENE ANESTHESIA*

By WILLIAM W. HUTCHINSON, M. D.
Los Angeles

THIS paper presents the personal impressions of one anesthetist on this comparatively new anesthetic. In the preparation of this paper two hundred charts of ethylene administration given by the writer, from the records of the Hollywood Clara Barton Memorial Hospital, covering work done during the latter part of 1927, have been studied.

The world is indebted to Luckhart and Carter of the University of Chicago and Brown of Toronto for presenting this wonderful anesthetic agent.

When ethylene was first introduced the literature contained many references to explosions. It

*Read before the Anesthesiology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

was not until the spring of 1926 that we were able to have its use permitted in the Hollywood Clara Barton Memorial Hospital, and then only under certain precautions and regulations. The above institution may be overcautious in the use of this gas, but it is better to be safe than sorry.

ANESTHESIA EQUIPMENT

What is required will be briefly outlined below.

Each operating room in which ethylene is used is equipped with a six by eight copper mat on which the operating table stands and to which it is grounded. This mat is grounded to the water pipe. The anesthetic machine is also grounded to the mat and all people in proximity to the patient are standing on it. This follows the recommendations of the Presbyterian Hospital of Chicago. How much actual good this does in the prevention of static sparks I am unable to say, but I do know that it is a legal protection for all concerned if we are unfortunate enough to have an explosion. The law requires only ordinary care, diligence and precaution, and we feel that with the above we have taken extraordinary care. The use of ethylene in the presence of a cautery or any electrical equipment that may generate a spark, either actual or static, such as x-ray equipment, fulguration apparatus and the like is not permitted.

The preference in the use of equipment in the administration of ethylene is purely a matter of personal equation the same as it is in the administration of nitrous oxid. Each anesthetist will use that equipment with which he is most familiar and with which he individually gets the best results. The writer's personal preference at the present time is a low pressure, sight feed apparatus carrying cylinders of three gases: (1) ethylene, (2) oxygen, and (3) carbon dioxid. The latter gas is at times essential, as in a certain proportion of cases there seems to be a moderate respiratory depressing effect, and with the addition of CO_2 to the amount of 5 per cent for a short period, the respiratory center is so stimulated as to overcome this depression. From observations to date, the writer does not favor the routine use of CO_2 in all cases, and feels that the mixture of 5 per cent CO_2 in oxygen which is used by some is wrong in principle. The question arises, whether in many cases the apparent respiratory depression noted during ethylene anesthesia is due less to the depressing action of ethylene than to overoxygenation. This viewpoint is based on the fact that during ethylene anesthesia the patient is getting a mixture containing from 20 to 35 per cent oxygen and, under these conditions, even with rebreathing, in a certain percentage of cases the CO_2 of the blood will fall to a point where respiratory depression is manifest.

The low pressure apparatus, however, has its disadvantages—such as handicapping the anesthetist in administering artificial respiration, if such be required. There are certain types of cases where I always use a high pressure apparatus if one is available; chief among these are the thyroidectomies, where the possibility of tracheal collapse always exists.

ANALYSIS OF HISTORY CHARTS

In this series of cases two hundred charts were analyzed. The facts, regardless of whether favorable or unfavorable to ethylene-oxygen anesthesia, are noted below.

Age of Patient.—The patient's age is no contraindication to the use of ethylene. The oldest patient in this series was eighty-five years. This patient had a perineal prostatectomy done and the anesthetic lasted one hour and ten minutes. He was in fair general condition, considering his age. He was given premedication of morphin sulphate, grains 1/6, and atropin sulphate, grains 1/150. No ether was used. He was in good condition throughout, with a maximum pulse of 104; and left the table warm and dry. There was no operative or anesthetic shock; no postoperative complications, such as nausea and emesis. The patient made an uneventful recovery.

The youngest patient in this series was seven years old. The child had an acute appendicitis. The length of anesthesia was forty minutes; no ether was added to mixture. The patient had an excellent color throughout. The skin was slightly moist at the close. Convalescence was uneventful, with no nausea, no emesis, or other complications. Highest temperature, postoperative, was 100⁴.

This is not the youngest patient to whom the writer has administered ethylene. A few days ago he gave this anesthetic to a child of three years, for a left mastoidotomy, with the same favorable results.

Time of Anesthesia.—The length of anesthesia has ranged from twenty-one minutes to two hours and fifty-five minutes. There were twenty-two patients listed in this series of two hours or over. The writer's personal feeling is that, for prolonged anesthesia, ethylene is safer than nitrous oxid because of the fact that the patient is never underoxygenated.

Premedication.—In discussing this phase the writer feels he is treading on old controversial ground. He believes that in any gas anesthesia a full opiate should be given, for it allays fear, brings the patient to the surgery in a more receptive mood and helps remove the apprehension, which is always present in a greater or less degree; in addition to the good resulting from the pharmaceutical action of the drugs. Premedication also helps greatly in the relief of immediate postoperative suffering.

In this series, seventy-five patients had pantapon, grains 1/3, and scopolamin (Roche), grains 1/200; seventy-three had morphin sulphate, grains 1/4, and atropin sulphate, grains 1/150; twenty-four had morphin sulphate, grains 1/6, and atropin sulphate, 1/150; fourteen, due to age or some other definite reason, received morphin and atropin in smaller doses, or morphin alone.

Fourteen patients received no preliminary medication—six of these were cesarean section patients

where an opiate is contraindicated on account of the baby; but who with us always receive an opiate, either pantapon, grains 1/3, or morphin, grains 1/4, after the cord is clamped, for the immediate postoperative effect of the drugs. The balance of the series were either children or emergency cases operated too soon after admission to make the administration of an opiate effective. The preliminary medication should be given from forty-five minutes to one hour prior to surgery; a shorter time than this cuts down its value materially.

Type of Surgery Handled.—In this series of operations there were one hundred and seventeen laparotomies, which included the following types of surgery: appendectomy, salpingotomy (unilateral or bilateral), oöphorectomy, oöphorotomy, subtotal hysterectomy, total hysterectomy, appendical drainage, suspension, posterior gastroenterostomy, intestinal resection, intestinal obstruction, cholecystectomy, cesarean section, both classical and low cervical, ectopic pregnancy, and myomectomy.

Extra-abdominal conditions in the series amounted to eighty-three; including breast amputations both simple and radical, thyroidectomy, nephrectomy and nephrotomy, pyelotomy for calculus, suprapubic cystotomy, Watkins-Wereheim interposition operation, various types of rectal work, amputations, etc.

One hundred and twenty-eight patients were handled with ethylene oxygen alone, comprising fifty-two intra-abdominal operations, four upper abdominal, and seventy-two extra-abdominal.

In seventy-two patients ether was added to the mixture in varying amounts—sixty-two times in intra-abdominal operations, five times in upper abdominal, and five times in extra-abdominal work—the last five cases including prostatic abscess, inguinal hernia, pyelotomy, Bartholin abscess and rectal fistula.

It is evident from the above that virtually all extra-abdominal surgery was accomplished with ethylene oxygen alone, and that in intra-abdominal work ether was added in varying amounts in less than 55 per cent of the cases. I have included in these tabulations, all cases in which ether was used regardless of how small the amount. In the majority it was so small as not to in the least affect the recovery.

Condition on Operating Table.—One of the most striking things about ethylene anesthesia is the condition of the patient while surgical operations are being carried on. The induction is surprisingly quick and easy. The patient has no conscious memory after the first forty-five seconds or one minute. In only two cases of this series was there a prolonged stage of excitement—one a former athlete and an alcoholic, and one a woman patient with no history of alcoholism. In the great majority of cases the patient is in excellent condition throughout. The color is invariably good, cyanosis never being seen, due to the high percentage of oxygen which is used. The danger sign, so far as color is concerned, is more apt to be a lividity than cyanosis. The pulse is, as a rule, full and regular. There was a slowing of the pulse in 65 per cent of the patients; with an acceleration at some time during the operation in 35 per cent of this series. The respiration is not accelerated as when ether and nitrous oxid are used, and is of moderate depth, as a rule not interfering with abdominal surgery.

Relaxation is not so complete as with a straight ether anesthetic, but more complete than is usually secured with nitrous oxid. As previously stated, 64 per cent of this series required no ether in the mixture. After surgeons become used to the anesthetic they seldom complain of rigidity.

Dehydration during anesthesia while surgical operations are being performed, is one of the most prolific causes of shock and postoperative complications. Under ether anesthesia a patient will often lose more fluid through perspiration than can be replaced in hours by drip or hypodermoclysis. In ethylene anesthesia this is conspicuous by its absence. In this series one hundred and six patients left the table dry; in sixty-five patients, the skin was moist. There was moderate sweating in twelve patients and profuse sweating in four. This, to the mind of the writer, is one of the great advantages of ethylene.

In only four of these patients were stimulants required on the table. In one of these the anesthetic lasted two hours and fifty-five minutes. The patient was a woman, age thirty-seven, in fair general condition. Pulse became rapid and weak during the latter part of the surgical work, and 7½ grains of caffein sodium benzoate was given. Condition improved, but on stopping the anesthetic, patient became livid, respiration shallow and rapid, pulse rapid. A second 7½ grains caffein sodium benzoate and ¾ grains alpha lobelin were given. Patient was returned to bed in poor condition. Further stimulation and intravenous saline was given with ultimate complete recovery. This patient had all the aspects of surgical shock.

The second patient was a woman of sixty-five, who was in complete collapse. In this patient a complete intestinal obstruction had existed for forty-eight hours prior to admittance to the hospital. Extremely poor condition existed throughout—skin cold and clammy, temporal pulse not palpable. Was returned to bed in poor condition.

The third patient was a male, sixty-five years of age. The operation done was a perineal prostatectomy. With this patient also, the pulse was weak, skin was livid, and general condition was poor at the close. Patient reacted nicely in about one hour.

The fourth patient was a male, age sixty-three. Left pyonephrosis with calculus, perinephric abscess. Nephrectomy. Time under anesthesia, two hours. Patient was in poor condition at start; pulse was weak and irregular. Caffein sodium benzoate and digifolin were administered. Was returned to bed in poor condition, because of toxemia and shock.

Postoperative Condition.—The general condition of the great majority of these cases was excellent at close of the surgical procedures. Color good, skin in good condition, most were rational

by the time they reached their beds. With few exceptions, where an unusual amount of ether was added to the mixture, all patients were conscious and rational in a half hour after leaving the operating room.

In checking on the postoperative condition the incidence of nausea and vomiting was found to be considerably higher than had been expected. There was no nausea or vomiting in one hundred and six cases—53 per cent. Slight nausea with no emesis existed in twenty-four cases. Slight nausea with occasional emesis was present in forty-one cases. Emesis on taking fluids, without nausea was noted in thirteen cases. Moderately severe nausea and emesis for twenty-four hours or less in four patients. Severe and prolonged nausea and emesis, over twenty-four hours, in six patients. Delayed nausea in five patients. It was felt that these were not due to the anesthetic but were more probably caused by an acidosis or alkalosis. In two patients there was neither nausea or emesis for twenty-four hours, then severe for forty-eight hours. In two other patients there was freedom for the first forty-eight hours, then one suffered for seventy-two hours, and one for four days. The fifth (a patient with cholecystectomy following previous drainage) started at the end of first forty-eight hours and continued severe, though intermittent, for twenty-five days.

Postoperative Complications.—Aside from the nausea and vomiting which have already been mentioned, postoperative complications that could in any way be attributed to the anesthetic appeared in only thirteen patients.

The first of these patients was a man, age fifty-six, operated for a ruptured appendix. Total anesthetic time was fifty-three minutes, ether added to mixture for a short time. The patient developed a cough, with a few bronchial râles, on the day following the operation. Cough continued for five days, with expectoration of thick, tenacious mucus, and then subsided. Maximum temperature 101[3], and respiration 22.

The second, a male, age fifty-six. Operation: perineal prostatectomy. Anesthesia time, one hour and twenty-seven minutes; no ether. Had profuse diaphoresis for first seventy-two hours.

The third, a woman, age twenty-seven. Operation: freeing adhesions, resection of right ovary and modified Gilliam. Anesthesia time, one hour and twenty-one minutes; ether added. Pain developed in left chest twenty-four hours after operation, but with no râles, abnormal breath sounds, or friction rub. Symptoms subsided in forty-eight hours.

The fourth, a male, age forty. Operation: thyroidectomy. Anesthesia time, one hour and twenty minutes; no ether. Irritating cough for three days, postoperative. This was undoubtedly due to tracheal irritation.

The fifth, a woman, age thirty-one. Operations: appendectomy and myomectomy. Anesthesia time, one hour and thirty-one minutes; ether added. Pain in chest, with temperature of 103, on the ninth day postoperative. More likely embolic than an anesthetic complication.

The sixth, a boy, age thirteen. Diagnosis: acute appendicitis, complicated by a slight bronchitis, with few moist râles at base of left lung, posteriorly. Operation: appendectomy. Anesthesia time, fifty-eight minutes; no ether. Patient developed a bronchial cough the day following the operation, with temperature of 101. Cough troublesome, with slight pain in right chest for two days, when the patient began raising large amounts of frothy sputum. Cough entirely subsided by the seventh postoperative day, when temperature reached normal.

The seventh, a male, age fifty-one. Operation: incision and drainage of prostatic abscess. Anesthesia time, one hour; no ether. Chill three hours following operation, with temperature to 104; followed two hours later by an attack of paradoxical tachycardia lasting one-half hour.

The eighth, a male, age twenty-nine. Operation: appendectomy. Anesthesia time, forty-eight minutes; no ether. Cough, with expectoration of thick mucus on second day.

In addition to these eight cases, five patients complained of headache, more or less severe, and lasting from a few hours to three days.

How many of the above complications were due to the anesthetic, it was not possible to determine.

Deaths.—Death occurred in five patients of this series; the time, postoperative, varying from one hour to seventeen days. The mortality cases were as follows:

Patient with strangulated inguinal hernia, with complete obstruction for forty-eight hours, with loop of gangrenous intestine. Died two hours after leaving surgery.

Patient with empyema of gall bladder, with carcinoma of the liver. Lived seventeen days.

Patient with left pyonephrosis, with calculus and large perinephritic abscess. Marked surgical shock. Died in one hour.

The other two patients will be presented in a little more detail:

One was a young woman in good general condition; age, thirty-two years. Rather extensive pelvic surgery, the anesthetic lasting two hours and ten minutes, the last hour and fifteen minutes being drop ether, as she was one of the few patients in the series whom it was absolutely impossible to relax with ethylene-oxygen-ether mixture. Returned to bed in fair condition. On the first postoperative day she became slightly cyanotic, pulse rose to 110, and she was restless. On the second postoperative day the cyanosis deepened, respiration became shallow, rapid and painful. Patient was extremely restless, with occasional irrational periods. Pulse became weak and thready. Stimulation and medication seemed to do no good and she died about 8:30 p. m. of this day. Pulmonary embolus was given as the cause of death.

The other was a woman, thirty-three years of age. Anesthetic lasted two hours, with sufficient ether added for relaxation. Operation: trachel-

orraphy, perineorrhaphy, appendectomy, and posterior plication of round ligaments. This patient developed pain in the right lower chest posteriorly on the second postoperative day. This gradually increased in intensity and was aggravated by deep inspiration; no friction rub, bronchial breathing or cough at this time. On the fifth postoperative day the patient developed pain, with marked swelling of right wrist and with pain in the shoulder. On the sixth day there was a severe swelling of the vulva, and pain over course of the right saphenous vein. Slight hacking cough developed on the night of the seventh postoperative day. Color was fair. Became irrational on the eighth postoperative day. Condition continued to become more serious until the tenth day, when death occurred. Death was stated to be due to pulmonic condition. Consent for autopsy was not obtained. This patient was in a very toxic condition the last few days of her life, and from the extent and various locations of complications noted, it seems fair to at least mention the possibility of multiple emboli. Here again the question arises: Was the anesthetic responsible for the death?

CONCLUSIONS

In the foregoing, the results of ethylene-oxygen anesthesia as shown in a short series of two hundred cases have been given While this is a small number, it seems to measure up as an average group.

The complications and disasters following the administration of this anesthetic in this series have been here presented.

The writer's personal impression is that the good results far exceed the bad, and that ethylene has been one of the great advances in medicine of the last few years.

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ANGINA PECTORIS AND ALLIED CONDITIONS*

REPORT OF CASES

By PHILIP KING BROWN, M. D.
San Francisco

DISCUSSION *by A. L. Bloomfield, M. D., San Francisco; Franklin R. Nuzum, M. D., Santa Barbara; Bernard Kaufman, M. D., San Francisco.*

THE significance of heart pain and its causes, and a definition of what may be included in the syndrome of angina pectoris, merit discussion.

Heberden's description is clear: "They who are afflicted with it are seized while they are walking (more especially if it be uphill and soon after eating) with a painful and most disagreeable sensation in the breast which seems as if it would extinguish life if it were to increase or continue, but the moment they stand still all this uneasiness vanishes. In all other respects the patients are at the beginning of the disorder perfectly well, and in particular have no shortness of breath, from which it is totally different. The pain is sometimes situated in the upper part, sometimes in the middle, sometimes at the bottom of the os sterni. It likewise very frequently extends from the breast to the middle of the arm. The pulse is, at least sometimes, not disturbed by the pain." Heberden goes on to the variations in symptomatology and seems to include left coronary thrombosis, in referring to pain that may last several days.

ALLBUTT AND MACKENZIE CLASSIFICATIONS

Clifford Allbutt described three types of cases:

1. Typical postural pain, radiating to various parts of the body with arrest or restraint of respiration and sense of impending death.

2. Cases with marked atheroma fibrillation and general bodily pain.

3. Aberrant or larval types in which he includes the cases with the fear of death complex, unusual sensory manifestations, pain beginning in heart apex, or epigastric area, or even lower in the abdomen.

Sir James Mackenzie in one of his last published articles before his death (*London Lancet*, 1924, Vol. II, pp. 694-7) referred to two types of angina, the typical Heberden attacks and a mild form commonly found in women. In an analysis of two thousand patients who suffered from heart pain, one thousand cases were eliminated because of unsatisfactory recording of facts. In the other one thousand cases where subsequent events were recorded with precision, he made the following observations.

The cases were first divided: one, into a small group in which the pains were not associated with any disease of the heart; and two, the larger group where it was. The pain and its location, radiation, and other characteristics is the same in both groups.

In Group One he classified heart pain as a reflex manifestation of ill health, similar to vomiting, and which when it affected the nervous system, resulted in angina. The vast majority of this group were women under the age of fifty. During the war the condition was found in young soldiers suffering from obscure infections. Mackenzie followed several hundred cases of "secondary angina" and found that not one had died from any heart affection. The heart symptoms in every case disappeared, many were restored to health, others were crippled from the persistence of the original complaint or from some of its effects.

Some of Mackenzie's followers have taken his viewpoint about mild attacks of heart pain on exertion, and would have us believe that even when it radiates typically a neurosis underlies the conditions found in these patients.

A few cases are presented for the purpose of illustrating these conditions and to form the basis of this discussion.

REPORT OF CASES

CASE 1.—Dr. A., age seventy-one, had his first attack during his strenuous efforts at the time of the San Francisco fire in 1906, the severe substernal pain radiating to the left shoulder and down the left arm. Since then he has had eight major attacks; and if the

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minor attacks which follow smoking, slight but undue effort and indigestion were estimated at only one a day, he would have had over eight thousand such minor experiences. He goes now several days without such attacks, but formerly has had as many as eight or ten in twenty-four hours. Six years ago he had a third type of anginal pain; a left coronary thrombosis, for the pain of which he received a quarter of a grain of morphin every ten minutes for five doses before he got relief. In addition to these three types of anginoid pain he developed an intermittent claudication of the right leg, a further inhibitor of physical effort; and he had suffered from eight attacks of inflammatory edema of the lungs, seven of them at night, which were usually marked by a chill, fever to 104 degrees, pinkish sputum, and râles over both lung bases and fairly well up the back. Digitalis and caffein were indicated.

Such attacks are interpreted as painless spasms of some part of the cardiac vascular system. Wassermann has described right coronary thrombosis as painless, but the suddenness of the edema in this patient marked his condition as an acute failure of the left heart. The most striking point in this patient's history was that this man with three types of anginal pain in the heart area repeatedly said that the pain of his daily attacks, the eight major attacks, and the attack of coronary thrombosis, differed only in intensity and duration, and not in the least as to manner of onset or distribution.

Case 2.—Captain S., age sixty-eight, had precordial pain for ten years, usually induced by effort. There never was fear of impending death in an attack. Nitroglycerin promptly relieved him, and in the minor attacks, standing still resulted in an immediate lessening of the pain, and abatement within a minute or two. His condition was not serious enough to him to cause him to consult a physician until on one occasion, when he had a severe substernal pain, sudden in onset and lasting half an hour. Following a treatment with diuretin (theobromin sodium salicylate), reduction in his diet and weight, and moderation in exercise, there was no recurrence of an attack for six years. In fact he had gone so long without any attack of any kind that he neglected diet and rules of effort. After a hundred-mile automobile ride in the hot sun, he awoke in the night with a severe substernal pain lasting eight hours and of such intensity that when finally a doctor came, one grain of morphin was required to relieve him. Three days later he was still "sore" in the heart area and left wrist. He was confined to bed eight days. While free from pain and attacks now, five weeks later, he moves slowly and with due fear of further trouble.

The pain from his one major attack six years ago, and this last attack which was diagnosed as coronary thrombosis, were the same in substernal origin and left arm radiation, and differed only in duration and intensity. His minor attacks were marked by the onset of pain near the heart apex, spreading over the heart area, and some pain radiating to the left arm and forearm, but not to the left shoulder.

Case 3.—Mr. G. L., age fifty-eight, gave a history of typical substernal pain attacks radiating to both arms; a low blood pressure, especially during attacks; a deflection downward of his T wave in lead one of his electrocardiograph; and was diagnosed as having angina pectoris with marked coronary involvement. He died suddenly in what seemed a sinking attack, apparently painless. Autopsy showed acute extensive thrombosis of his right coronary artery, high up.

Case 4.—Mrs. W., age forty (reported as Case 5 in the last series published by Dr. Walter B. Coffey and the writer), had attacks of numbness in left arm and fingers after exertion, of five to ten minutes' duration. These continued over a period of eleven years before she had a typical attack of angina pectoris, which was marked by substernal pain extending along the base of the heart to the apex and around the left side to a point beneath the angle of the left scapula and then down the inner side of the left arm and forearm and up the left side of the neck. For eighteen hours this pain continued until it was finally relieved by morphin, after a trial without relief, of nitroglycerin. She remained in bed three weeks. After that she had as many as four attacks a week of similar pain, always induced by effort. These attacks were of shorter duration, and were relieved by nitroglycerin. A left cervical sympathectomy two years ago relieved her entirely, and eight days after the operation she walked a mile up a moderate grade, without an attack.

One could go on endlessly enumerating variations in manner of onset, severity of attacks, duration and radiation of pain and pathological conditions detected before and after attacks. It is not strange that great confusion results from the marked differences which characterize attacks rightly called angina pectoris. It is the purpose of this paper to try to clarify the situation somewhat, and to simplify it by calling all these attacks angina pectoris, however mild some of them may be.

The influence of the late Sir James Mackenzie in England and a few optimistic cardiologists in this country was exerted in an effort to minimize the significance of heart pain in certain conditions in which they tried to establish a basis for the diagnosis of mock angina or pseudo-angina. It would seem to be timely to protest against all this, and to state that treatment of substernal or apical heart pain, in my experience, has resulted in postponing the more classical attacks of angina pectoris for periods often ranging from five to ten years. It is very poor satisfaction to say "I told you so" to people who finally have the severe attacks, but who have shopped around for advice to their liking, when they have had minor heart pain with radiation, induced by effort, more apt to occur after eating and relieved by quiet. Mackenzie points to the large group of these patients who die of other conditions, as if that settled the problem. The first patient whose history was outlined in this paper, with his eight thousand minor attacks can hardly be called a false angina when one considers his major attacks and his coronary attack. Nor can the author's longest duration patient, L. W., age seventy-three, who had a major attack at age thirty-five, while driving a trotting horse that had to be held down during a race because of his tendency to break. It was ten years before his second attack and then followed ten years of minor attacks with a few major ones and finally when he came under my care he was almost bedridden. A routine of diet, diuretin, cleaning up infections of teeth and prostate resulted in a relief that led him to spend a winter abroad, and on his seventy-second birthday he wrote a postcard from Yellowstone Park, where he was enjoying himself, free from attacks; but never without his bottle of nitroglycerin, taking it at the first warning of pain, and never waiting to see how severe an attack might be. Perhaps he will die of some other condition. Certainly it would not be proper, on that account, to diagnose

his condition as a false angina. His aorta is big and rigid, and his attacks have the characteristic location and radiation described by Heberden 150 years ago, but they vary greatly in intensity and distribution—the severer ones sometimes even causing right-arm radiation of pain.

Case 5.—A doctor's wife, Mrs. A., age forty-five, came to me twenty years ago with what had been diagnosed as mock angina. She had a great deal of arthritis and a chronic cholecystitis with achylia. Since then I have succeeded, after much effort and patience, in inducing her to have all her teeth extracted and her gall bladder removed. It took ten years and more to accomplish this. The arthritis, the pain and digestive disturbances were better in consequence. Treatment has relieved greatly the "mock" angina years earlier, but in recent years indulgence in certain foods, especially sweets, has made the gastric symptoms worse and the angina has become more frequent and severe. Medical men in her family now recognize it as a true angina, typical in its relation to effort, with her margin of safety encroached upon by a full stomach. She is relieved of her pain by nitroglycerin, and likely to die in an attack because of her very large aorta and high pressure; in which the sudden exit from coronary thrombosis is less likely to come than though the pressure were very varying or low.

Case 6.—One more case marks the skepticism or optimism of some medical men and the danger of the gospel of pseudo-angina. A hurried call six years ago took me to the bedside of a surgeon, where he was found attending to some last matters because he had had several attacks of angina pectoris in the few days previous. The usual regimen was instituted, including his parting in due time with some very bad teeth and tonsils which he would not have allowed twenty-four hours in any patient's mouth. The result has been that five years have passed without any more attacks. In the meantime a leg of venison came to me from a 120-pound buck, which was "dragged 300 yards through the brush" without his having any pain. The incident of the old angina was laughed off. One does not want to rub it in, especially to a doctor, so I said nothing except a word of caution about not fooling with his heart at his age. The next attack came, this time with grave symptoms, because in the meantime had occurred the uncovering of a polycythemia. The attack took on more the nature of a coronary thrombosis and was precipitated at the time by taking a little too much phenylhydrazin or taking it too rapidly. There were some transient cerebral symptoms at the time. The fact remains, however, that the warning was enough and there is no more nonsense about false angina.

COMMENT

There is great danger in these conditions of wanting to interpret symptoms too lightly. In medicine it should be the ironclad rule to reverse the stand of law which considers a man innocent till proved guilty and hold symptoms referable to important organs as serious until the fullest investigation shows them to be susceptible of a better interpretation than the serious one first suggested. We have passed through the period of taking some convulsions too lightly, but who would leave a man at his job as a locomotive engineer once he had had a single manifestation of epilepsy? Before Economo made clear the existence of a condition we now know as lethargic encephalitis with its dreadful aftermath in so many cases, and its countless forms of minor ailments, there were many sufferers from that disease who were dismissed as neurasthenics because of their depressed condition, or of the Parkinsonian syndrome or because the many symptoms marked what might easily have seemed a too great dwelling on minor things, and a physical inanition common in asthenic nervous disorders. The recent controversy over the significance of annular shadows in x-ray plates of the lung, interpreted as pleural manifestations, as they were by the early propounders from the leading center in America for the study of lung diseases, is an excellent example of the placing of too little importance on the serious condition of lung cavity, which today everyone believes these shadows to represent.

For these reasons it seems wise that we should regard heart pain more seriously, and potentially consider as cases of Heberden's angina, all cases of heart pain produced by effort and aggravated by smoking, exposure to cold, by diabetes, distended stomach and nervous excitement, or accompanied or not by dyspnea which is largely dependent on the underlying heart condition, as is change in blood pressure during attacks, and which cases are finally relieved by nitroglycerin. If the pain does not radiate, it may still be angina pectoris, and attacks may come in time with more characteristic symptoms.

If the pain be unrelieved by one or two doses of nitroglycerin and even grows more severe and is associated with alarming symptoms, coronary thrombosis must be thought of. Here morphin must be used at once and until relief comes, for the nitrites do no good and may even do harm. The reaction of slight fever, congestive failure, lowered blood pressure, pericardial rub and definite change in the T wave of the electrocardiograph, will confirm the diagnosis.

If the pain instead of being substernal begins in the region of the heart apex and is never substernal, do not be too sure that you have not to do with angina pectoris. The coronary plexus has been shown by Wiggers to have vasoconstrictor fibers, and Humber in the laboratory at the Southern Pacific Hospital has shown that the coronaries in cats contract when the superior cardiac nerve from the superior ganglion and the cardiac nerve of the vagus are stimulated, even ten minutes after the heart ceases beating.

It is by no means established what angina pectoris actually is, but from our studies of cases at the bedside and during the operation of cervical sympathectomy and at autopsy where the coronaries have been injected with lipiodol or barium sulphate and then x-rayed (so as to show changes in coronary circulation, if present, before sectioning the vessels), and from studies on normal animals through recording by every means, it was possible to find such changes as are recordable in heart action under stimulation of the various nerves with a weak electric current, nicotin, and the injections of distilled water; and we have satisfied ourselves that heart pain whether begin-

ning substernally or at the apex is to be regarded seriously and should be studied thoroughly before being passed off as of no consequence.

SUMMARY

For working purposes we propose the following, most of which well-known writers advanced long ago:

1. Typical Heberden's angina begins with substernal pain which radiates to the left arm.

2. Clifford Allbutt refers to larval or aberrant forms where the pain begins in the apex region. Some of our patients who have died in attacks had the pain begin there. There may be coronary disease in such cases which it may not be possible to detect.

3. Abundant evidence has presented itself to us that major and minor attacks and coronary thrombosis may occur in the same patient, with no difference in the point of origin of pain or radiation. Duration and intensity alone vary.

4. If blocking a left coronary artery produces pain in the same locality, radiating to the same parts as do the typical Heberden attacks, then it seems fair to suppose that the coronaries play some part in many attacks of true angina.

5. Some cases of true Heberden attacks have no radiation of pain from the original substernal region. Such patients have sometimes developed them later, or have even died in attacks without true radiations.

6. Right coronary artery thrombosis may be always painless as claimed by Wassermann, and we have had patients where pathological findings seemed to prove this.

7. Typical attacks of Heberden's angina relieved by nitrites may follow coronary thrombosis.

8. Finally it seems to us that the most reasonable explanation of the phenomena of angina pectoris is that of spasm of the first part of the aorta (C. Allbutt) or the coronaries or both. Death occurs when the coronary circulation is too long interfered with by an extensive atheroma which contributes to ischemia.

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DISCUSSION

A. L. Bloomfield, M. D. (Stanford University School of Medicine, San Francisco).—Doctor Brown's paper brings out very clearly the main practical difficulty which the physician encounters in connection with angina pectoris, namely, whether the pain is of serious significance or of no consequence. Confusion seems to have arisen particularly in connection with pain which does not have the typical localization or radiation. This, as Doctor Brown clearly points out, by no means excludes a serious disorder which may terminate fatally. The features which should be relied on in making the diagnosis of serious cardiac pain are more the circumstances under which it arises than the character of the pain itself. If it is clearly related to exercise, excitement or eating, the burden of proof is on the man who says it is not of grave significance. Vague or even severe pains, on the other hand, which occur under other circumstances; for example, when the person is quietly in bed and particularly if there are no other evidences of cardiac disease, require much more careful consideration before one can be sure that they are of real import. While the error of convicting a patient unjustly of angina pectoris is a serious one, the reverse is almost as unfortunate. Above all, the decision should not be made too hastily in a doubtful case, but there should be careful observation of the patient over a period of time and a detailed study of the reaction of the cardiovascular system.

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Franklin R. Nuzum, M. D. (Cottage Hospital, Santa Barbara).—The author's paper emphasizes the diversity of symptoms classified under the symptom complex known as angina pectoris. His illustrative cases demonstrate the contention that angina pectoris is not the name of a disease, but the name given to symptoms varying in location and intensity, and suggesting the varying pathology that may cause these symptoms. He strongly emphasizes the point that even minor attacks of pain may be the result of definite pathologic changes occurring in the root of the aorta, in the coronary vessels, or in the myocardium itself. That minor attacks, or even major seizures, may be due to spasm of the coronary vessels and of spasm of vessels in other parts of the body, is suggested by a marked increase in blood pressure that frequently occurs during an attack of angina pectoris, the pressure falling immediately on the cessation of the attack. This rise in pressure may go to a height of 80 to 100 millimeters of mercury above the patient's usual pressure.

Such an event tends to disprove the time-honored theory that angina pectoris is due to a weakened myocardium. A weakened myocardium would not be so likely to respond with a markedly increased pressure.

As Doctor Brown has stated, those instances in which the pressure is lower than the patient's normal during the attack, which persist for long periods of time, and which require large amounts of morphin sulphate for relief, are cases in which coronary occlusion occurs. Too frequently these attacks are not recognized as being due to coronary occlusion, and such a patient is allowed to get about too quickly. This early activity increases the possibility of rupture of the infarcted area of the myocardium. That rupture of the heart wall occurs much more frequently under such circumstances than has been generally recognized is evident from the increasing number of instances of this kind described in pathological reports.

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Bernard Kaufman, M. D. (2000 Van Ness Avenue, San Francisco).—Doctor Brown's remarks are of distinct service in that he again directs attention to the symptom of precordial pain. The fact that one might not agree in toto with his viewpoint is of minor significance. It is more important that he once more emphasizes the lack of agreement concerning a single important symptom, thus maintaining our interest in its continued investigation.

In this regard it might be well to recall that certain apparently contradictory clinical facts need elucidation before one may safely accept any of the generalizations so far offered in explanation of this symptom.

The following clinical observations might serve to illustrate some of the difficulties with which one is confronted when attempting to generalize concerning precordial pain. From them it is evident that, even when associated with the radiation said to be characteristic of true angina pectoris, this symptom may occur in clinical conditions of a diametrically opposite character.

The precordial pain of the so-called true angina pectoris is said to occur with and to be characterized by a rise in blood pressure. But a similar pain with a similar radiation may arise in conditions associated with a fall in blood pressure. For example, the subjective precordial symptoms seen occasionally during an attack of paroxysmal tachycardia are essentially identical with those associated with true angina pectoris.

It is true that this similarity only becomes marked after the paroxysm of tachycardia has persisted over a certain period and when the attack is of a certain

intensity. When both these conditions are fulfilled the subjective symptoms in both conditions are remarkably similar and are present not only during the attack itself, but also after the attack has cleared up. The significance to be attached to this clinical observation lies in the following: It is often urged that a patient prone to attacks of angina pectoris will cease to have such attacks upon the onset of cardiovascular decompensation, but may again be the victim of their recurrence when the functional activities of the cardiovascular system have once more been restored to normal. The appearance of such precordial pain with its characteristic radiation during a prolonged attack of paroxysmal tachycardia shows that the contrary condition is, at times, also true, namely, that a person may be persistently free from precordial pain until cardiovascular decompensation (that is, with paroxysmal tachycardia) sets in, and then experience the precordial pain only when the cardiovascular decompensation has reached a certain intensity. Further, that such a person becomes and remains free from the precordial pain and its radiation so long as cardiovascular compensation is maintained.

Nor is an attack of paroxysmal tachycardia singular in this regard. A person without the necessary preliminary training, if he persists in severe physical effort, will develop not only a precordial pain with a sense of constriction across the chest, but also coincidentally an acute cardiac dilation with resultant cardiovascular insufficiency and fall in blood pressure.

A similar clinical paradox is seen, when one recalls the oft-repeated statement that patients suffering from angina pectoris cease to have attacks of precordial pain during the febrile state. It cannot be the febrile state alone that is operative in such cases because patients with acute pericarditis and fever not infrequently complain of an intense precordial pain, which pain with its direction of radiation is indistinguishable from that of angina pectoris.

It would therefore seem a fair assumption that the symptom of precordial pain with its customary direction of radiation is not to be looked upon as the sole criterion by which one may safely presume to evaluate either the nature of the condition calling forth the pain, the guide upon which one may safely rely with respect of therapy or the basis upon which one should rely in regard to prognosis.

A similar uncertainty exists in regard to the pain experienced at the apical region of the heart. Doctor Brown has referred to Mackenzie's clinical observations and his resultant opinion regarding the lack of significance to be attached to pain arising in this region. It is therefore perhaps not out of place to mention the work done upon the same symptom by Herz, and to recall that the latter author was able to show that such apical pain was only one symptom of a definite symptom complex, to which he gave the name phrenocardia.

The importance of Herz's work lies in the fact that he was able to definitely show that the apical pain in such patients was not of cardiac origin but arose from a painful spasm of the diaphragm localized in the apical region. Perhaps equally important was the further fact shown by Herz that most of the patients exhibiting this syndrome were women who ceased to be tormented by this pain upon the cessation of their sexual life. Herz's work, having withstood the test of reinvestigation, might be held as vindicating the viewpoint of those who do not attach too grave a significance to pain arising in the apical region.

Doctor Brown (closing).—The fact that blood pressure does frequently rise in an attack of angina pectoris is not generally considered of special importance, because nearly every writer on the subject admits that true attacks occur in which it does not rise. This has been our experience. Whether it rises or not may be due to the condition of the coronary arteries, since in true blocking it does not rise unless the thrombosis occurs in one of the smaller vessels in which case it may rise.

Admitting with Doctor Kaufman that Lewis is right and that symptoms essentially identical with those associated with true angina may occasionally occur in paroxysmal tachycardia, I can only state that in a large number of such cases, one of whom has had an average of one hundred attacks a year for fourteen years under my care, there has never been such a symptom. On the other hand one of our angina cases operated on later by sympathectomy had developed paroxysmal fibrillation coincident with the onset of angina. In other words the substance of what Doctor Bloomfield states underlies the whole study of heart pain. One must know as clearly as possible what the condition of the heart is, what excites the attacks, as well as what arrests them. Doctor Nuzum's reference to thrombosis is interesting especially in view of his careful and extensive study on that subject. We have had two patients with fusiform ancurysm of the descending aorta whose attacks of angina resemble coronary thrombosis. One was relieved by novocain injections in the paravertebral nerves.

THE LURE OF MEDICAL HISTORY

MARCUS AURELIUS SEVERINUS (1580-1656)

A Contemporary of Harvey, and Author of the First Work on Comparative Anatomy

By Frederick Leet Reichert, M. D.
San Francisco

LAST year the three hundredth anniversary of William Harvey's *De Motu Cordis* was celebrated. It might be of interest to consider a contemporary of Harvey, Marcus Aurelius Severinus, an Italian who abandoned law to study medicine under illustrious native masters, who taught anatomy and surgery, and who became a celebrated teacher and surgeon of Naples, writing extensively on a variety of subjects, but now being celebrated in the history of medicine as the author of the first comparative anatomy (*Zoötomia Democritae,* 1645). This work, though crude, antedated the writings of Malpighi, Leeuwenhoek, and Swammerdam.

THE SEVENTEENTH CENTURY, THE AGE OF SPECIALIZED ANATOMICAL RESEARCH

The dawn of modern anatomy in the sixteenth century, with the actual public dissections of the human body, and the publication of Vesalius' *Fabrica* in 1543, was followed in the seventeenth century by extensive specialized anatomical research. Quite naturally Severinus made anatomical investigations, but in his eagerness for research he utilized the more accessible bodies of animals. This research led to the publication of the *Zoötomia* in which the woodcuts show the viscera of birds, fishes, and mammals with some comparative phases of their development.

SEVERINUS, THE SURGEON

Both as an anatomist and as a surgeon, Marcus Aurelius Severinus was highly esteemed by the populace, and for a long time he filled the chair of anatomy and later was professor of surgery in the

University of Naples, where he yearly attracted a crowd of students to his lectures.

Garrison states that in comparison with the extensive development of anatomy in the seventeenth century, the literature of surgery in this century seems meager, and that among the Italians no surgeons are found commensurate in rank with those of the three centuries preceding; the only names deserving mention are Cesare Magati (1579-1673), Pietra de Marchetti (1579-1673), professor of Padua, and Giuseppi Zambeccari, pupil of Redi and pioneer in experimental surgery.

HIS CRITICISM OF SURGEONS

Reading the preamble to his work on surgery, one would feel that Severinus deserved mention with Magati and Marchetti, for as the self-styled champion of heroic surgery he is depressed by the degradation and discredit of surgery in the seventeenth century, attributing the cause to the fatal separation of medicine and surgery and to the negligence of surgeons in the study of the nature of illnesses and their disdain for the lectures of the great masters, as well as to their almost complete ignorance of anatomy. He felt that surgery had been reduced to a miserable state of more or less timid maneuvers without regard to the surgeons' dignity or care for their reputation, and that they gave preference to medicaments over the use of decisive surgical methods and the actual cautery.

He complained of the cowardice of the people who refused to suffer the slightest pain, and he himself felt that pain is easily borne and that one should always be ready to suffer for the health and integrity of one's body. He insisted that active Herculean surgery was less dangerous and brought more glory than the "haphazard, effeminate and compromising" surgery. He objected to the absurd reasoning which prescribed against a virile surgery which had so long been abandoned.

One expects to find in this surgical work great operations, perhaps some that never before had been attempted, yet throughout the many chapters there are very few cases of major surgery, and we find with disappointment his frequent use of incision and the cautery, rather than excision, in the treatment of the tumors or the removal of foreign bodies and gangrenous areas.

TREATMENT OF ULCERS

However, the individual cases show that he was bold, daring, and boastful. In speaking of ulcers, he says, "As for one grounded in the teaching of Fallopius, Galen, and Aëtius, who warned that varices in connection with an ulcer will never thrombose however one may try, I have happily healed, contrary to all opinions, ulcers of two, three, and seven years' standing by cutting the surrounding varices which prevented consolidation. The first of these operations performed at Naples made me a criminal in the eyes of the governor and house staff of the hospital." He healed many such ulcers, noting the relief of pain in the distal parts as well as subsidence of inflammation, so that "the area returns to its natural condition as soon as one cuts the surrounding network just as a plant dries up when one cuts off the water which moistens it."

MARCUS AURELIUS SEVERINUS

He secured an excellent result in a man with an ulcer whose leg was riddled with varices by having suppuration develop in a large varix, which he incised and cauterized in the groin. The subsequent thrombosis of the tortuous veins in the thigh and leg with the healing of the ulcer led to the cure of the man.

NEW TREATMENT FOR HERNIA

He described a new treatment for hernia, giving the details as follows: "One must have a large needle threaded with very strong new silk one foot long, a little ivory or bone plate, rectangular in shape and about one inch in thickness; also such plasters and poultices as may be necessary. In the morning the patient is laid on his back and the intestines pushed up and back, after the parts have been shaved. The scrotum is stretched until the skin of the groin is taut and the patient breathes restrainedly and is warned against crying out. With the left hand the surgeon takes hold of the membrane, pushing back the hernia so that it does not descend, and with the right hand identifies the spermatic vein which goes to the testicle. He then passes the needle, dipped in oil, so as to include all the membranes and skin near the vein but without including it. The little ivory plate is also included in the thread, which he ties in such a way that it is flat on the skin without involving any other part of the scrotum, and with the precaution that the two testicles are

outside of the knot. Every day the plate is turned once or twice like a tourniquet so that it becomes tightened gradually from all sides and little by little it cuts the skin and membrane and enlarges the hole toward the testicle where pus forms. At the same time the area which has been stretched or dilated by the hernia becomes fibrosed by the application of compresses and poultices and in the meantime within ten to fifteen days, the thread has completely severed the tissues contained in it. Precautions must be taken to allow a good cicatrix to form and to harden into a callus, taking care that there is no relaxation in the new scar which would favor recurrence. By this method there is no fear that the veins will open." Is it any wonder that the people gave him an opportunity to call them "cowardly and soft"?

In the long series of chapters Severinus discusses and illustrates by cases the treatment of plagues, ulcers, tumors, adherent eyelids, strictures, laryngotomy, umbilical hernia, hypospadias, phimosis, imperforate hymen, simple fistulae, spreading whitlow, herpes and other types of ulcers, obstinate cicatrix, bite of mad dog, polyps, condyloma, corns on foot, nymphotomy, ingrowing nails, amputations and sections of nerves, muscles and tendons and their suture.

OPERATIONS ON THE SKULL

The last chapter deals with trephining, which was in use at that time for simple migraines, for mania, or for diseases of the eyes. Severinus successfully eradicated a so-called fungus tumor of the dura mater from the Spanish nobleman Avalos, who was afflicted with intolerable headaches which no remedy could appease. It was proposed to the patient to trephine the cranium, an operation to which he consented. This proceeding brought into view under the bone a "fungous excrescence," the destruction of which proved a permanent cure of the violent pains which the disease had occasioned. Is it possible that this was the first successful extirpation of a brain tumor?

The apparent boldness and daring of Severinus was emphasized by the general timidity of the surgeons of his day and he boastfully records feats of successful surgery which, in another age, would have been most simple. He was well read in the Greek-Arabian surgery and used the actual cautery extensively. Born in 1580 he died of the plague in 1656, a year before the death of Harvey.

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CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

THEOPHYLLIN-ETHYLENEDIAMIN FOR CARDIAC PAIN*

REPORT OF CASES

By Louis Baltimore, M. D.

Los Angeles

SELF-PRESERVATION is one of man's primal instincts, and pain is perhaps the most prominent sensation which calls this instinct to the fore. Perhaps it is this combination which gives pain in so vital an organ as the heart its terrifying character. Or perhaps, thinking behavioristically, it may be merely the reaction of the autonomic nervous system without conscious cerebration. Whatever the cause, pain of cardiac origin is of great importance to the clinician.

Of the drugs used for the relief of this symptom, perhaps the nitrites and the xanthin derivatives are the most often used. The peripheral vasodilating action of the nitrites is transitory, the longest effect being obtained from erythrol tetranitrate, which has the disadvantage of causing severe headaches. The real rôle of the nitrites is the lowering of a high blood pressure when an apoplexy seems imminent, or in the actual attack of angina pectoris.

The xanthin derivatives, more specifically, caffein, theobromin, theophyllin and their salts, also bring about a peripheral vascular relaxation, but the organs most affected vary with the drug used. Caffein exerts more a central (cerebral and medullary), theophyllin a peripheral, effect, and theobromin is intermediate. Theophyllin has the strongest renal and coronary vascular effect,[5] and is of some use in the treatment of the conditions causing cardiac pain, but in the main it is disappointing. Theominal, a combination of theobromin and luminal, is better, but this also often disappoints. Luminal, much used in hypertension cases, also has a peripheral vascular dilating action.

Although mention of theophyllin-ethylenediamin, or euphyllin, was made in the literature at least as early as 1908,[1] only comparatively recently has it received any appreciable notice in the American literature. Recently, Musser [2] said that euphyllin action is apparently due to the theophyllin content alone, yet he also says that, of all the xanthin group, theophyllin-ethylenediamin possesses the greatest coronary-dilating power. Guggenheimer [4] states that the action of euphyllin is explained by "a considerable acceleration of the flow of blood, even by the ethylenediamin component alone." Smith, Miller, and Graber [6] state that euphyllin increases the perfusion rate of the

* Since the above was written, the trade name has been changed from euphyllin to metaphyllin.

intact heart from 40 to 90 per cent, this increase being independent of the accelerated heart action.

This marked coronary-dilating power, giving an increased blood supply to the myocardium, is readily appreciated by one in accord with Mackenzie's view that cardiac pain is due to myocardial ischemia. At any rate, euphyllin has been used for the relief of cardiac pain of all types, and reports are highly commendatory. The writer, from his own experience with this drug in private practice and in the Graves Dispensary of Los Angeles and the out-patient medical department of the Los Angeles County General Hospital, can testify to its efficacy in hypertensive heart disease, in occasional temporary heart strain, and in angina pectoris of the pseudotype or due to coronary sclerosis, as well as in the senile heart. Musser [2] quotes cases from the service of Dr. George Herrmann of coronary thrombosis which were greatly relieved by euphyllin. Guggenheimer [3] has used it with success in cardiac dyspnea and asthma, as well as in heart block; and Musser [2] reports that this drug produces an actual fall in blood pressure in hypertension.

REPORT OF CASES

The following are a few illustrative cases:

Case 1.—Senile heart disease. Male, aet. fifty-six, complained of dyspnea and precordial pain on slight exertion. Physical examination negative except for large build, with heart moderately enlarged. Blood pressure normal and laboratory work negative. Digitalis gave relief of dyspnea, but not of pain. In combination with theominal, there was also some relief of pain. Euphyllin without digitalis gave complete relief from pain except under exertion unusual to the patient.

Case 2.—Hypertensive heart disease. Male, aet. sixty-three, complained of precordial constriction on exertion. Physical examination showed enlarged heart with blood pressure of 215/110. Laboratory work negative. One week on euphyllin, 0.1 gram t. i. d., gave freedom from distress.

Case 3.—Temporary heart strain. Male, aet. forty-eight, obese, sedentary worker, heavy eater; heart size normal, blood pressure 128/80. Hiking in mountains with wrestlers resulted in precordial pain. Euphyllin, 0.1 gram t. i. d., relieved completely in two days.

Case 4.—Angina pectoris due to coronary sclerosis. Male, aet. sixty-two, laborer, on slight exertion had precordial pain radiating in typical manner. Blood pressure moderately elevated. Peripheral vessels markedly sclerosed. Euphyllin, 0.1 gram t. i. d., relieved pain.

Case 5.—Pseudo-angina. Female, aet. forty-eight, had pain of anginal type even without exertion and while resting in bed. Examination and laboratory work negative. Euphyllin gave marked relief in one week and complete relief in two weeks.

Euphyllin is available in suppository form, in ampoules for intramuscular or intravenous injection, and in 0.1 gram tablets for oral use. It is readily soluble in water, and is usually given in 0.1 gram doses t. i. d., but may be given in larger doses and more often. Euphyllin and digitalis may be given concomitantly. Through its theophyllin content, euphyllin has a diuretic action, and, though the German writers praise this highly, Christian [7] does not rate it so well, although he does think it a good diuretic. Reports of its having been used continuously in the same patient for years without evident harmful effect indicate its innocuousness.

The relief afforded by this drug is so marked that it deserves to become better known and to be quickly delivered from the relative obscurity in which it now rests.

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The Hospital and the Osteopath.—Doubtless the question has arisen in many cities as to whether osteopaths should have the right to treat their patients in the city hospital. The Buffalo City Hospital, New York, has recently released a letter replying to Howard B. Herdeg, D. O., in which he propounded the following questions:

1. Is there any rule or regulation of the Buffalo City Hospital which justifies the authorities of that institution in refusing to receive patients referred by licensed osteopathic physicians in Buffalo? If so, what does the regulation read? Who instituted it?

2. If the board of managers have made a rule or regulation which specifically states that patients shall not be admitted when referred by osteopathic physicians, will you, at the next meeting of the board, recommend that such rule or regulation be changed so that this discrimination against osteopathic physicians shall cease?

3. If the board of managers have made no rule which specifically discriminates against osteopaths, will you give an order to the various department heads of the Buffalo City Hospital to the effect that patients be admitted for hospitalization when referred by osteopathic physicians who are licensed to practice the healing art in New York State under the same conditions that control the admission of patients by other physicians?

The reply of the hospital was to the effect that any citizen or resident of the community may refer patients to the Buffalo City Hospital; also, sick persons are privileged to apply direct without having been referred by some individual. Only those physicians, however, may treat patients in the Buffalo City Hospital or receive appointment to its staff who are eligible for membership in the American Medical Association. "Were it not for the latter regulation we should lose our standing with the American Medical Association and the American College of Surgeons," the hospital stated after consultation with these organizations.—*The Pennsylvania Medical Journal,* January, 1929.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

BLOOD TRANSFUSION

Le Roy Brooks, San Francisco.—The consistent increase in the number of blood transfusions that are being done are due to (1) recognition by the profession of the good results therefrom, (2) safety of the procedure when grouping and cross-agglutination tests are properly done, and (3) the simplicity of transferring blood from one person to another by modern technique. There will be a further increase in the number of transfusions given when the subject has received the recognition it deserves. In other words there are still many transfusions indicated that are not done, and many that are given are done too late.

Indications.—Hemorrhage that cannot be stopped by mechanical means because of the location of the bleeding point or points or because of the lack of normal coagulation of the blood, as in the blood dyscrasias, is best treated by transfusions of whole blood. If one transfusion does not check the hemorrhage the procedure should be repeated as many times as is necessary. The increase in the coagulability of the patient's blood because of the transfusion more than offsets any tendency to increase hemorrhage because of the slight temporary rise in blood pressure from the transfusion.

Patients, medical or surgical, adults or infants, with *secondary anemia* convalescing slowly from infections will recover more rapidly, with fewer complications and with greater certainty after they have been given blood. In addition to the oxygen and food-carrying properties of the transfused blood the stimulating effect upon the patient's appetite is evident.

The *acute septicemias* are best treated by early small transfusion daily or every second day. Of course surgical drainage of any focus of infection in such cases is necessary, but after this is done, daily transfusion of 250 to 300 cc. of whole blood makes recovery possible in many patients who would otherwise not recover.

In *hemorrhage of the newborn,* transfusion is a specific. It may require, and often does, more than one transfusion, but if the unmodified blood is given early and repeated when necessary the desired result will be produced. Unfortunately, temporizing with fibrogen preparations, horse serum, etc., is too often practiced and death from cerebral hemorrhage occurs in babies who could otherwise be saved by early transfusion.

The greatest field of usefulness for transfusion is in *surgical patients.* For the poor surgical risks and those whose lesions demand extensive procedures, often accompanied by hemorrhage and followed by shock, a transfusion or two makes these procedures relatively safe. This applies particularly to patients past middle life. One should not be guided so much by anemia in such cases, but if after a thorough examination and all laboratory tests there is a doubt as to the surgical risk, the patient should be transfused before or after surgery, and in some cases at both times.

Yates and Raine of Milwaukee have shown that all general anesthetics reduce the oxygen-carrying power of the blood from 10 to 25 per cent. This inefficiency of the oxygen-carrying power occurs within twenty-four hours after the anesthetic and lasts for from one week to ten days. It can be readily understood that the patient's natural defense is greatly reduced at what is probably the most critical time of his life. In view of this evidence, if a transfusion is to be given either before or after operating and not both before and after, it would be preferable to give the blood following the anesthetic.

The *safety of transfusion* depends upon selection of a proper donor by grouping and cross-agglutination tests and dispatch in making the transfer of blood. Each of these tests should be done with each transfusion. In addition to the four main groups there are subgroups, particularly in group two, which will cause reaction. Many of these incompatibilities will be detected if cross-agglutination tests are done. Those who do the majority of transfusions prefer a universal donor (Moss, IV) for all transfusions because of the more frequent occurrence of subgroups found in people who are group two.

Citrate transfusions are followed by more reactions than whole blood transfusion, skillfully performed. The technique of transferring the blood should be mastered if the best results are to be obtained. Any clotting, plugging of tubing, or delay in the procedure will increase the number of reactions. The precoagulation changes which occur in blood render it toxic before the actual clot is formed. In a series of eight hundred transfusions we have had only five alarming reactions and no chills. Grouping and cross-agglutination tests are both done routinely and all the transfusions have been performed by one technique, which will be described below.*

Methods.—Citrate blood transfusions, popularized by Lewison, find a definite place clinically, but whole blood transfusions are preferable and sometimes essential. There have been many techniques developed for the transfusion of citrated blood. They will not be described here.

The methods of *whole blood transfusion* which have stood the test of time can be summarized as follows: The Unger method and its modification, the Lindemann syringe method, and the

* Since this manuscript was sent to the publishers we have had three chills in forty-six transfusions. The chills were mild, lasting from five to fifteen minutes, and were not followed by any ill effects.

Kimpton Brown paraffin tube method and its modification.

The *Unger Method* depends upon the manipulation of valves in the central portion of the apparatus, the blood being drawn from the donor through a rubber tube and expelled through another rubber tube into the patient by use of the attached syringe and the proper manipulation of the central valve. It is an excellent method, but has the disadvantage of requiring an assistant to maintain a continuous flow of blood, and also the blood is passed through rough rubber tubing which often, unless the technique is perfect, causes clotting and the number of reactions (chills) will vary, we believe, directly with the number of mishaps occurring during the transfusion.

The *Lindemann Syringe Method* requires one or, preferably, two assistants. The success of the method depends upon speed of manipulation of the 20 cc. syringes. One operator draws a syringe full of blood, passes it to another who injects it into the patient. Three syringes are used with a third person rinsing the syringe not in use in citrate solution, or a sufficient number of syringes are provided so that no syringe is used a second time. This requires twenty connections and disconnections with each needle in the vein of the donor and the recipient to transfuse 500 cc. of blood and has the disadvantage of requiring one or more assistants.

The original paraffin tube *Method of Kimpton Brown* is used by many surgeons, but its greatest disadvantage is that it is necessary to incise the skin and expose and open the vein of both the recipient and the donor to insert the glass cannula tip of the 300 cc. paraffin tube. The *Brooks' modification* of the technique consists of having 300 cc. paraffin tubes made with tips to fit needles which are especially made for the purpose. The needles are equipped with obturators which are ground to fit every part of the needle, including the hub, perfectly.*

The transfusion is carried out as follows: A needle is inserted into the patient's vein at the elbow and plugged by its proper obturator. Another needle is attached to the paraffin-coated tube and inserted into a selected vein of the donor. By means of the tourniquet (blood pressure armlet with 30 to 50 mm. pressure) and the suction bulb, 300 cc. of blood can be collected in less than one minute. The tube is then disconnected from the needle and this needle plugged by its proper obturator. The tube is held by the attending nurse or it can be laid down with the tip turned up if no attendant is at hand. The suction bulb is reversed and the obturator is removed from the needle in the recipient's vein, the paraffined tube is quickly attached and the blood forced in by means of the pressure bulb. *The bulb must, of course, be released just before the last of the blood leaves the tube to prevent forcing air into the patient's vein.* This process can be repeated as many times as is necessary to transfuse the desired amount of blood. We have, in a number of instances, taken four tubes from one donor, through the same needle, when transfusing patients shocked by hemorrhage. The usual transfusion of 500 to 600 cc. requires the use of but two tubes. There has been but one failure to transfuse the desired amount of blood in over eight hundred transfusions. In this instance the donor (husband of patient) fainted and blood could not be secured from his veins after they were exposed and incised.

The procedure outlined above permits whole untraumatized blood to be transfused rapidly before coagulation changes have occurred; makes it unnecessary to cut down upon the veins of the donor and only rarely upon those of the recipient and infants; eliminates the necessity of rubber tubing which favors clotting and removes all possibility of transferring blood from patient to donor. It is rapid, simple, requires no assistants who may make mistakes, and the patient and donor do not necessarily have to be in the same room—often important for psychic reasons.

* * *

Irving Wills, Santa Barbara.—In 1872 Leisrink in discussing blood transfusion gave out the dictum that transfusion should be done whenever the blood became physiologically unfit. This terse statement seems perfectly to answer the question of indications for blood transfusion whether the situation be one of anemia, due to hemorrhage or constitutional disease, septicemia or changes in the character of the blood such as found in the dyscrasias. By transfusion we accomplish four general ends: (1) The addition of millions of oxygen corpuscles to the stream. (2) Filling of the blood vessels with a viscous fluid of normal consistency. (3) Stimulation of the blood-forming organisms. (4) In cases of hemorrhage, stimulation of clotting by the addition of normal plasma.

I agree with Doctor Brooks that the greatest field of usefulness for blood transfusion is in surgery. In my own practice I have frequently seen serious operative procedures carried out without difficulty in the poor operative risk given the benefit of transfusion.

There is probably no one best method of blood transfusion. Obviously in metropolitan areas with their excellent hospitals and highly trained assistants, the more complicated procedures are more easily and efficiently carried out. The method embodying the greatest simplicity with uniformly good results is naturally the method of choice for the average physician in the small community. The citrate method, because it can be performed without any assistants if necessary, is quite satisfactory where whole blood is not essential. In unmodified blood transfusion the question of what method to use is, it seems to me, one of personal choice as any one of the modern methods works beautifully in proper hands. Doctor Brooks' modification of the paraffin tube of Kimpton Brown is laudable chiefly because it places this method at the disposal of many who have heretofore avoided it as a complicated procedure.

* A more detailed description of the tubes and needles, their preparation and the procedure, can be found in California and Western Medicine, January, 1926.

Thomas O. Burger, San Diego.—Blood transfusion is one of our most valuable agents in saving life and hastening convalescence. At times its effect is very spectacular. As Doctor Brooks well says, "It is almost free from any danger if given according to the well-established knowledge of matching and the careful method of administration." Yet, in spite of this, it is not used nearly so often as its place demands, especially in many localities.

Some of the reasons are that, unless in an institution where some enthusiastic doctors make the procedure a common occurrence, there is lack of consideration or thought of it by the doctor in attendance.

Another reason that it is not more often used is the difficulty of obtaining prompt Wassermann-tested donors. However, each year the problem of securing easily obtained donors is being better solved.

In most hospitals now, group and direct matching can be and is easily obtained, and only in extreme urgency should this not be done.

We are transfusing more of our "below par" or anemic cases prior to surgery, and are always prepared to give a quick transfusion following any operation where much blood has been lost or the vitality seems too low, whether from an extensive procedure, a long general anesthetic, or other cause.

Whole blood will invariably do more than any amount of other fluids. This is notably true in hyper or toxic goiter operations in the bad-risk cases. Some years ago Crile made use of the words "stupid blood," and I have felt that in some cases of very toxic thyroids, where transfusions are indicated, there is more benefit derived from a donor who is not a goiter subject.

Whole blood is unquestionably more desirable than citrated, and it is as easily administered by a number of the methods mentioned. The Scannell apparatus is the choice of our group. There are circumstances that may make citrated blood necessary, but it is never so desirable. The most important fact to remember is that blood transfusion is the best treatment for surgical shock whether from hemorrhage, its most common, or from any other cause.

* * *

John Hunt Shephard, San Jose.—Only a few years ago a successful blood transfusion was considered a proper motif for an article in any medical journal, and if a reporter learned of a transfusion being done, it was used as "front-page filler." Today every surgeon does blood transfusions.

Controversies have arisen as to the relative merits of the different methods of transfusion. Theoretically it may be argued that when we wish to give a patient blood, why not give it free from any diluent which changes its normal behavior? Practically it does not seem to make much difference whether we use one method or another. The chief concern is: don't delay transfusion until the patient is moribund.

Butsch in 1919 found that when using the citrate method fewer severe reactions followed when both the donor and recipient were food-free for twelve hours prior to the transfusion. Some of the severe reactions attributed to the citrate method are undoubtedly due to the use of new rubber tubing. In any intravenous medication no rubber tubing should be used that has not been thoroughly washed and repeatedly boiled. Several years ago I witnessed a severe reaction following the intravenous injection of 600 cc. normal saline.

Whenever time will permit, it is advisable to cross-agglutinate the donor and recipient and not rely entirely upon the standard groupings, especially if using any other than a group four donor.

No matter what method is used or how carefully the grouping is done, I do not approve of the practice of transfusing anesthetized patients although emergency may occasionally demand that it be done. It has not infrequently happened that after a patient has received 25 to 50 cc. of blood he will complain of precordial pain, become pale, develop a cold perspiration and an increased pulse rate. If the transfusion is hastily continued a severe reaction with perhaps death will result. If the above enumerated symptoms present themselves the transfusion should be temporarily stopped, and if the symptoms subside after a few minutes, a further amount of blood may be cautiously given; if there is reappearance of the symptoms a different donor should be secured.

One of the greatest fields of usefulness for transfusions that has not been so thoroughly recognized as it should be, is in cases of septicemia irrespective of what the blood picture may be. In these cases the giving of 100 to 200 cc. of blood every forty-eight hours may be a life-saving measure.

Building Fund Created.—The West Virginia State Medical Association has just learned that the McDowell County Medical Society has created a building fund to be presented to the state association when the latter organization is ready to purchase or erect a permanent state home in Charleston, West Virginia. The treasurer of the McDowell society was directed to deposit the sum of $50 on savings account, and at the end of each calendar year, beginning 1929, 10 per cent of the net surplus of the society is to be deposited to the credit of this account. The principal and the accrued interest thereon is to be applied to the purchase or erection of a building to be known as the Home of the West Virginia State Medical Association, the same to be located in the city of Charleston.

Here is something new, and something highly commendable. It is, so far as we know, the first definite and concrete step ever made in West Virginia for the sole purpose of creating a state home. This admirable objective has been talked of for several years, and now comes the news of an actual fund set aside for no other purpose than the purchase or erection of a building. The action of the McDowell society was purely voluntary. We do not bring this matter to the attention of the association members with the idea of influencing other county societies to take similar action. We simply wish to congratulate the West Virginia State Medical Association upon the thoughtful initiative of one of its component groups.—*West Virginia Medical Journal.*

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EDITORIALS

PUBLIC HEALTH BILLS NOW PENDING IN THE CALIFORNIA LEGISLATURE

Why Space Should Be Given to Public Health Legislation.—Members of the California Medical Association who may have the thought that too much space is given in the pages of California and Western Medicine to a consideration of prospective public health legislation are requested to turn to the Miscellany Department of this issue and glance through the list of proposed laws which would have a direct or indirect influence on the health interests of citizens of California. The organized medical profession, through the California Medical Association, must meet the responsibilities which come to its members in these legislative matters, because well-trained physicians may be assumed to have more accurate knowledge and therefore more valuable judgments on public health matters than have fellow citizens who have not had such specialized training. And particularly must the officers of the state association and its component county societies be alert and active in protecting the best interests of the citizens of California, and of the standards of the medical profession.

This journal would be derelict in its field if it did not make it possible for every member of the state association to have somewhat of a knowledge of these proposed public health laws, or if it neglected to give that information to county society officers which would allow more active coöperation on their part with the legislative committee of the state association. When one remembers that our state senators and assemblymen who have places on the senate and assembly public health and similar committees are practically all laymen, and that in committee session these lay legislators must consider the measures referred to, and a multitude of other bills as well, and then determine whether or not it should be recommended that the measures "do or do not pass," it becomes evident that medical men and women cannot escape their responsibilities to display as great or greater interest so that all undesirable legislation may be defeated.

* * *

Difficult Task which Faces Officers.—This year, as in the many years that have gone before when the California legislature has been in session, it has not been an easy task for the members of the Council of the California Medical Association and of its executive and legislative committees to decide what were the measures which should receive the support or opposition of the California Medical Association. In this dilemma the advice and opinions of the officers of the California State Board of Health, of the California State Board of Medical Examiners, of the California Pharmacy Board, of the California Tuberculosis Association, and of other organizations has been requested so that more definite and safer conclusions might be come to in regard to legislation in which these various bodies were also interested. The fundamental thought might be stated to be this: That all proposed legislation which in the last analysis would not work for the highest and best public health and professional interests should be opposed.

It is interesting to note that the California Medical Association is interested in only two or three bills of its own, which will be discussed later. All the remainder of this massive amount of legislation which is listed in this issue has been introduced from miscellaneous outside sources. How much additional legislation will be proposed is not known, but until the last hour of this the forty-eighth legislative session of California, it will be necessary to be on guard.

Some further comments on certain of the proposed laws may not be amiss at this time, since they are now before the legislature which is again in session, it having reconvened on February 18, after a recess of one month. The date of adjournment is of course uncertain, since it will depend in part upon the manner in which the legislators attack the business before them, and the extent to which they program their work.

* * *

Vocational Standards Bill.—Considerable comment has been made on this measure in this journal. At the time of this writing, the bill as drafted is far from satisfactory to the officers of the California Medical Association. On the other hand, it is an administrative measure in which Governor Young is much interested, because it would per-

mit him to bring a dozen or so examining boards together in one department, and permit him and the chiefs of the major departments of the state's activities to maintain a closer touch and supervision of the work of the various boards. Nearly all of the examining boards are self-supporting, the licensing fees and not taxation money from the general fund of the state, being the means of financial support.

These boards moreover, for some time past, have been permitted to spend only such money each year as was budgeted by the board of control and finance department of California. The question of saving taxpayers money may therefore be stated to not come into question. It must be conceded also that a lay director of the department could give no expert or similar advice in the conduct of examinations of a board such as the California Board of Medical Examiners. Nor should such a director be permitted to interfere in any manner with that equally important function of our board of examiners, which has to do with the search for and prosecution of illegal practitioners.

The officers of the California Medical Association appreciate Governor Young's position in desiring to have one man to whom he could turn, who would be a member of his advisory board or cabinet, and who would be able to give him his impression of the efficiency of the various boards, and so on. On the other hand, the officers of the California Association are very much of the opinion that, as regards the profession of medicine, with the obligation of that profession to be particularly organized in protection of public health interests, it would appear that a vocational department director should be contented simply to be a member of the Board of Medical Examiners; with no power to vote, however. Such membership would permit the department director to act as a liaison officer between the board and Governor, to advise the board insofar as his experience fitted him thereto, but without power to interfere in the important and grave responsibilities of the Board of Medical Examiners, which is none other than to protect lay citizens and the public health by maintaining those professional standards which would adequately safeguard the citizens of California from incompetent or illegal practitioners.

The above are some of the matters which the representatives of the California Medical Association will take up in conference with Governor Young and his representatives, in the hope of working out modifications of the bill as it stands at this writing, so that what has taken us so many years of effort to bring into being shall not be torn down either in the near or remote future, through unwise powers granted to a department director, in relation to medical licensure and its associated activities.

* * *

State Medical Library Bill.—One of the measures which originated in the California Medical Association is that providing for a state medical library. That plan was first broached in the November issue of California and Western Medicine, page 343, and the tentative draft which was worked out on the suggestions therein made was introduced as Assembly Bill No. 488 and was printed in the February issue, page 141. The bill was also discussed at a conference with the members of the California Board of Medical Examiners at its recent Los Angeles meeting. This bill provides that all moneys in the Medical Board's Contingent Fund in excess of $100,000 shall be transferred to the State Library Board for the purchase of medical books and journals, etc. In that way the most recent medical literature will be accessible to every practitioner of California, no matter how far removed from San Francisco or Los Angeles, where semiprivate medical libraries exist. As was stated in the November editorial, the money so used comes entirely from doctors, and it is proposed to use it in an educational sense, to help make better doctors, so that citizens in turn may be the recipients of the best and most up-to-date type of professional service. It is hoped that this bill will pass. Every county society should send resolutions to the state senators and assemblymen from its district urging a favorable vote on Assembly Bill No. 488. Members of the profession who personally know senators or state assemblymen can aid in its passage by also writing letters endorsing the bill. In the Miscellany Department of this issue of California and Western Medicine is given the roster of state senators and assemblymen.

* * *

Basic Science Bill.—A "Basic Science" act, known as Assembly Bill No. 666, was introduced at this session by the Legislative Committee, but it has been agreed that it will be best if it be not pushed. At this time the California Board of Medical Examiners is not in favor thereof, and the members of the Executive Committee also feel that this is not the proper time for its passage. Moreover, the present draft would need many alterations, and the whole matter is altogether too important to be jeopardized by hasty action. The Council's special committee on medical practice act has made a number of reports during the last two years favoring such a measure, but it is a question whether it should not be submitted as an initiative. The Executive Committee voted that special study of the entire subject should be made during the coming year in order to make possible the preparation of a draft that best would fulfill the objects of such a measure. Those members who wish to make further study of this matter are referred to the comments made in this column in the October 1927 issue of California and Western Medicine, page 525, and in subsequent issues.

The primary object of such a measure is to bring to a stop the legal recognition of new cults of the healing art, whose initial disciples and doctor graduates of this or what not have usually little more than a reading-writing-and-arithmetic preliminary education and a one-year course of professional training. In this day and genera-

tion it is high time that this deplorable spectacle of improper licensure of healing art disciples, with its menace to the health and lives of unsuspecting citizens, should cease. A basic science act, which would demand a full high school education for all schools of the healing art as a prerequisite to professional training, is a means to achieve that end. It is important, however, that the measure which is drafted shall be sound from a constitutional standpoint, and so worded as to accomplish the real end desired. Otherwise it only encumbers our statute books, and adds red tape to the procedures which reputable and well-trained practitioners of the healing art must go through in order to secure their licenses. All things considered it has been deemed best to postpone active effort for such a measure and Assembly Bill No. 666 will probably be permitted to die in committee.

* * *

Nurses' Bills.—And now we come to a consideration of several bills dealing with nurses, those able coworkers of physicians and surgeons in hospitals and homes, whose able ministrations and trained senses make them at times the second eyes and ears of physicians. Senate Bills Nos. 104, 52, and 143 will not be discussed in detail. They contain clauses which, if passed, it is believed would do more damage than good to the cause of nursing. Like the Basic Science Bill, these measures might well go over for consideration by the next legislature, the entire subject being carefully studied in the meantime. At the present time the licensure of nurses is under the Bureau of Registration of Nurses of the State Department of Public Health, and that bureau up to the present has done its work well. It is possible that the bureau will be transferred to the Department of Vocational Standards. Would it not be wise to let that change suffice for the present, rather than to create an entirely new board of altogether different complexion and outlook? The clauses which would allow a proposed new board consisting of nurses to decide what hospitals should be accredited and so on, also should be most carefully considered. And certainly Senate Bills Nos. 52 and 143, which would require all practical nurses to be registered and certified is a distinct and perhaps dangerous innovation. Is the time ripe to demand that no man or woman be permitted to call himself a practical nurse without being certified? Are not so-called practical nurses regulated by the law of supply and demand and by the efficiency of such practical nurses? In this column we do not wish to go into detail concerning these measures. Component county societies and members who are interested and who wish to study these measures can obtain copies of these bills by addressing the secretary of the Senate and requesting copies thereof.

* * *

Some Other Bills.—Space does not permit a discussion of the many other measures which have been under consideration by the Association officers. Mention may be made of the fact that there is a bill which would give *chiropractors* the right to testify in industrial accident cases. The Industrial Accident Commission is in one sense a political body and as such must be responsive to political influence. The commission has extraordinary powers in accepting professional testimony. Many licensed chiropractors have preliminary education and professional training far below the standards which for the same years of graduation have been insisted upon from those who, as physicians, sought licensure from the California Board of Medical Examiners. The question therefore arises as to what would be the effect, professionally and economically, if authority for recognition of men with lesser training were vested in the Industrial Accident Commission. What would be the next recognition requested? Have the best interests of the state ever been attained when a premium has been placed on deficient education and standards, and especially in so responsible a calling as that of a practitioner of the healing art?

Some of the proposed changes in the law having to do with the *cosmetologists* or beauty doctors trench closely on the domain of dermatology. For such cosmetologists whence comes the knowledge necessary for safe and accurate diagnosis?

In one of the *narcotic bills* it is proposed that whenever a narcotic is given or used, then the physician within twenty-four hours by registered mail must notify the Pharmacy Board! A multitude of questions arise in such a demand. To what end can such a provision be justified? Are physicians to be clerks, at their own expense, for narcotic inspectors? Is the confidential relationship between physician and patient to be broken down?

Whether the control of *rabies* should be under the control of the State Board of Health or the State Department of Agriculture comes up in another measure.

For years the medical and dental schools suffered from lack of *cadaver* material. Laws passed by the last legislature gave remedial measures. Now some of the undertakers want access to this cadaver material. It is a question whether there would then be sufficient cadaver material to properly train physicians.

And so on and so on, as one goes down through the different public health bills, a list of which appears in the Miscellany Department of this issue.

* * *

Coöperative Support Needed.—Perhaps what has been here written may give members who are interested in these matters, which are so intimately related to the practice of medicine, an insight into the difficulties which face the officers and committees of the California Medical Association when these officers seek to protect the standards of the medical profession and of the citizens of California. In case the call comes to county units or members for support and aid, let no one be lacking in well-doing. It is not enough that nonsectarian practitioners of the healing art should know the worth of their ideals and practice; it behooves them to combat all efforts to degrade their standards.

THE SAN DIEGO-HOTEL DEL CORONADO MEETING OF THE CALIFORNIA MEDICAL ASSOCIATION

This Year's Annual Meeting.—Another fiscal year is drawing to a close for the California Medical Association. At San Diego, in the old Hotel Del Coronado, on May the 6th to 9th, the fifty-eighth annual meeting of the California Medical Association will be held. The Committee on Scientific Program states that there is every indication that the papers which will be read at this meeting will be fully up to the splendid standard set in the years gone by. That is not all. In addition to having this meeting at the extreme southwestern corner of the United States, the members of the Association are to have the opportunity to make a visit into a foreign country. On one of the afternoons and evenings a sojourn will be made into Old Mexico. The wonders there to be revealed will be realized only by those who are in actual attendance.

This year a change in the general arrangement of section and other meetings will be tried out, in that practically all section work will proceed promptly throughout the morning hours, so that the afternoons may be given over to entertainment, and the evenings to the business sessions of the House of Delegates, or to social programs.

* * *

Advantages of Attendance at Annual Sessions. The advantage of attendance at these annual state meetings is too well known to need emphasis, and is particularly appreciated by all members who on different occasions in the past have availed themselves of the pleasure and benefit which accrues through such attendance. It is a good thing to rub shoulders with one's fellows and colleagues from other portions of California, and in these meetings one has the opportunity of doing this, with a minimum outlay of effort and time.

The month of May is one of the beautiful months of the year in California, and a large number of members will probably use the splendid auto roadways of the state as a means of reaching San Diego and, at the same time, give themselves the pleasure of close-up contact with our glorious California mountains, valleys, and seashore.

It is urged that every member who can, make a special effort to attend this fifty-eighth annual session. Our San Diego colleagues intend to make this year's gathering one of the historic sessions of our state association. Let us do our part by being with them in our actual presence, and to help make the scientific, the business, and the social gatherings a complete success. By such cooperation each of us will be personally benefited, and our Association and its component county units all made stronger.

STATE TUBERCULOSIS PREVENTORIUMS AND CONVALESCENT CAMPS

Antituberculosis Propaganda of Twenty-Five Years Ago.—Members of the California profession who were in practice a quarter of a century ago can vividly recall how strong were drawn the pictures of conditions in Colorado, Arizona, and California, in relation to the large number of American citizens who, afflicted with tuberculosis, sought relief and cure through residence in the southwestern section of the United States. At that time the different states of the Union were just awakening to their responsibilities to the consumptive poor and were instituting many state sanatoria. Those institutions, with the splendid educational campaign of hygienic-dietetic living which was promulgated through the National Tuberculosis Association and its component state and local units, played very important parts in giving to the American people, both lay and medical, a much better orientation as to the significance and vastness of the tuberculosis problem in its health, social, and economic aspects, than had up to that time been accepted.

* * *

The Excellence of the California Plan.—Fortunately for our State of California, though it was somewhat laggard in instituting state aid for the consumptive poor as compared with eastern commonwealths, it worked out a method of approach in the solution of its tuberculosis problems that has seemingly proven to be of special merit. The decision of California not to have one or two large state hospitals for tuberculosis, but instead to look upon the care of the consumptive poor as a community problem, placing the responsibility upon the various counties of the state, was a viewpoint that was discussed in some detail in this column, in the issue of March 1928, page 375.

We of California have reason to be quite proud of the splendid work which our State Board of Health through its Bureau of Tuberculosis has been able to accomplish in the years since the California Tuberculosis Commission brought in its recommendations in the year 1914.

* * *

Preventoriums and Convalescent Homes Part of the State Commission's Original Plan.—One of the goals which was mentioned in that commission's report was the desirability of preventoriums and convalescent homes. During these intervening years the major energies of the State Bureau of Tuberculosis have been largely centralized upon the institution and development of county tuberculosis sanatoria and units, both as regards the construction of the buildings, and in relation to the best methods of maintenance and procedure.

California is now about to embark upon a new expression of interest in the solution of this grave public health problem. Senate Bill No. 487, introduced under the sponsorship of the California Tuberculosis Association, would bring into being state preventoriums and state convalescent homes in the different counties of the state, the counties being aided through a revolving fund supplied from the general financial resources of the state.

It is hoped through the institution of such preventoriums and convalescent homes to supplement the excellent protective work already in existence. One, by picking up children and other citizens who would in all probability become victims of tuberculosis, and two, by following up the care of citizens who have been treated in county sanatoria or in the tuberculosis units of county hos-

pitals, in such a manner that these persons who have been under treatment shall not be thrown out on their own resources at too early a stage to break down under the stress of modern-day living conditions, and thus nullify all the care and money expended during the more serious stages of their infection.

It is interesting to quote from the report of the 1914 California Tuberculosis Commission because it shows what at that time was construed to be the goal to be reached. Thus, under the caption, "Essential Factors in a State Plan," it was stated that "The first unit consists of the tuberculosis dispensary. The second unit consists of the hospitals, sanatoria, etc., in which institution treatment is given, and the work colonies, etc., which may be established." And again:

"Item 1. Observation wards, day and night camps, forest schools for the tuberculous, week-end country houses, visiting nurse work, etc. These are institutions that can be operated under the direction of the dispensary officers.

Item 2. Sanatoria. . . .

Item 3. Hospitals. . . .

Item 4. Colonies and Farms.—These are communities of convalescent patients under the direction of tuberculosis experts, who carefully train the patients back to ability to do full days' work in their various occupations."

* * *

Senate Bill No. 487, Now Before the Legislature.—Senate Bill No. 487, which now comes to the front after a lapse of some fourteen years since the original recommendations were made by the state commission, during which time Items 2 and 3, relating to sanatoria and hospitals, have come into full operation, now proposes to bring into being Item 1, providing for preventoriums or camps, and Item 4, providing for convalescent colonies or farms. To the writer, who had the honor to be the chairman of the commission that drafted these recommendations, this attempt at the full realization of some of the ideals of the state commission is of particular interest.

* * *

A Possible Defect in the Bill.—There is one clause in Senate Bill No. 487, however, which is worthy of special thought, since it provides that in addition to indigent patients, "pay patients" may be accepted. From the standpoint of fullest paternalistic or state medicine such provision could be easily accepted. The theoretical advantage of such provision necessitates, however, a consideration of the fundamental principles involved, as well as the probable ultimate outcome of such practice and policy, if pursued on a large scale.

It is indeed difficult to draw the line where state aid shall begin and end with different classes of citizens who are suffering from disease; or to determine whether extraordinary or special aid should be given in the effort to overcome one disease, but that equally energetic efforts should not be made under state support and financial subsidy to attempt to overcome other or all diseases. In other words, it is most difficult to mark the line where so-called state medicine should begin and end.

The medical profession above all other classes of citizens has a special right to ask such questions, because it is members of the medical profession, more than any other class of citizens, who have and who will probably continue to render gratuitous aid to indigent injured and ill citizens, out of all proportion to the donations made by the majority of fellow citizens in similar walks in life. It cannot be said of the medical profession that its members would hold back legitimate and proper methods of aiding the indigent poor who are ill or injured. On the other hand, its members feel that their services to such persons give them a special right to inquire into and consider the merits of proposed measures having to do with the interests of the public health and their own profession. That is why this clause, which would make it possible to have "pay patients" in these proposed state tuberculosis preventoriums and convalescent homes, is here discussed, and why it is worthy of serious consideration by component county societies of the California Medical Association.

What Shall Be Done in Respect to Medical and Legal Practice in Relation to Quality of Service?—The journal has on several occasions alluded to remarks by George R. Nutter, president of the Massachusetts Bar Association.

The remarks of Mr. Nutter in reference to the discipline of lawyers engaged in fraudulent practices have a very definite bearing upon the question of the discipline of physicians for improper conduct. We quote his remarks:

"I see no reason why bar associations, which after all are merely private aggregations of lawyers, should be compelled to look after this question of discipline. It is, after all, the duty of the commonwealth, if it requires standards for admission, to see that the standards of the profession are kept up and complied with. There is a certain irony, which if it were not irritating would seem delicious, that the commonwealth should prescribe such low standards of admission as to fill the bar with ill-trained lawyers, and then expect the bar associations to bring proceedings to disbar those who never should have been admitted in the beginning."

The situation in medicine is analagous to that in law. The Board of Registration established to protect the public is not granted the power it asks in order to protect the public effectively. Of course education does not necessarily imply high character. But the standards and methods of some of our medical schools chartered in this state have not been such as to favor the development of high character among the students.

The public must be made to understand that reasonable standards for medical practice are established for their benefit and that improper standards of practice and conduct not only affect the health but are now very definitely affecting the pocketbook of the average citizen.—*Editorial from Boston Medical and Surgical Journal.*

University of California Plans Summer Course for Doctors.—The fifth annual session of the summer courses for graduates in medicine at the University of California Medical School will be held from June 3 to 29 at the medical school in San Francisco.

Most of the clinical branches will be covered in the morning and afternoon courses, including general medicine, surgery, pediatrics, circulatory diseases, gastro-intestinal diseases, x-ray, orthopedics, urology, eye, nose and throat, neuropsychiatry, pathology, and laboratory diagnosis.

In addition to these regular courses, there will be daily midday clinics and on several evenings a week, lectures on general medical topics.—*U. C. Clip Sheet.*

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Surgery

Cancer: The Dangers of Oft-Repeated and Too Vigorous Examinations.—In spite of the earlier diagnosis of carcinoma and more improved methods in its excision, the operative treatment of cancer, moderately effective in the complete removal of small and early growths, still presents a discouraging outlook when the final results of all our efforts are reviewed. In our combat with this devastating disease several points need constant reiteration and reëmphasis.

It is dangerous to subject a patient with a probably malignant tumor to repeated examinations. It is fatal to squeeze or roughly handle a malignant tumor. Experimentally Tyzzer,[1] Knox,[2] and Wood [3] have demonstrated a fact, many times noted clinically, that small malignant growths may be completely removed locally, but death occurs subsequently from widespread generalized carcinomatosis. In addition the important fact has also been demonstrated experimentally that gentle massage of the original tumor greatly increases the probability of such metastases. Mice have been inoculated subcutaneously with mouse carcinoma and mouse sarcoma, and the tumor allowed to grow to a small size, approximately 5 mm. in diameter. In half the animals (the other half being held as controls) massage of the tumor was instituted for very brief periods of thirty to sixty seconds on alternate days for one to two weeks, the total period of massage never exceeding from two to five minutes. The original tumor was then removed and the animals allowed to live for varying periods, when they were killed and a search made for pulmonary and other distant metastases. The corresponding control group was similarly treated, omitting only the massage. The number of metastatic emboli of malignant cells in the second unmassaged group totaled approximately half the number found in the first or massaged group. Apparently the manipulation and massage set free particles of tumor which formed emboli capable of producing metastatic tumors in the lungs and thence in other organs.

With these facts before us it is easy to understand the occasional appearance of a patient with an extraordinarily wide and rapid dissemination of a malignant tumor following misguided osteopathic or self-inflicted massage treatment.

It is most important for us as practitioners of medicine not to be party to an equally criminal procedure by subjecting a lump in the breast, a growth on the lip, or any of the accessible tumors, to vigorous palpation, which compresses, squeezes or roughly handles tissue possibly composed of malignant cells. Our examinations should be brief, not repeated, painstakingly gentle, *by as few doctors as possible*, with a minimum amount of handling or displacement of the tumor. Any manipulation produces alternately compression and relaxation of the tissue, thereby acting as a pump in setting free lymphatic and vascular emboli. Students must be taught the inherent dangers of all examinations, and that tumors should not be squeezed between their finger tips, but palpated gently with the flat surface of the palm of the hand. The consistency and configuration of the tumor can easily be ascertained by this palpation without danger to the patient.

It is only through constant schooling that we can produce in ourselves that instinctive reaction to cancer whenever and wherever we meet it, which says, "Handle it gently and as little as possible." The eye alone frequently makes the diagnosis without the slightest need of palpation.

Embolic metastasis is a constant threat to a patient's life from the moment the tumor is first noticed. Such an embolus completely nullifies any and all procedures that are subsequently taken. Let us, as a profession, exercise the greatest care in not increasing the possibility of such emboli by thoughtless and by, oftentimes, unnecessarily vigorous manipulation of a possibly malignant growth.

Similarly, at the operating table, the operative handling of the tumor should be limited to the barest minimum, and the malignant tissue itself should always be gently handled. In the case of intra-abdominal tumors, generous incisions should be made to avoid unnecessary pulling and hauling of the growth. Extreme care must also be exercised to protect the sides of the wound against implantation metastasis which may develop as the result of direct contact with the surface of the malignant tumor.

Emile Holman, San Francisco.

REFERENCES

1. Tyzzer: Factors in the Production and Growth of Tumor Metastases, J. Med. Res., 1913, Vol. 23, p. 309.

2. Knox, L. C.: The Relationship of Massage to Metastasis in Malignant Tumors, Ann. Surg., February, 1922, Vol. 76, p. 129.

3. Wood, F. C.: The Experimental Pathology of Cancer, J. A. M. A., January 3, 1925, Vol. 84, No. 1, p. 4.

Urology

The Changing Prostatic Mortality.—In the present day it is necessary for the surgeon to supplement technical skill with a knowledge of the type and progress of disease. Such knowledge leads to clinical acumen, good judgment, and

proper preparation of the patient. The low surgical mortality of today stands as a shining mark, indicating the care taken in the preoperative preparation of the patient handicapped by cardiac, renal, and metabolic diseases. A prostatic case is a good illustration of the need for an amply equipped surgeon who has diagnostic acumen, who is capable of preparing his patient to withstand the operation, and who has the technical skill to carry out a successful surgical procedure.

Prostatic surgery is not in the experimental stage. Experiences of the urologic surgeon have put the methods of preparation and operative procedure on a sound basis. The choice of the suprapubic or perineal operation is a personal one, depending, as a rule, on the one in which the operator is the most skilled, as there is little difference in the mortality rate in the hands of expert urologic surgeons.

Prostatectomy was formerly attended with a mortality rate that seemed too high for the magnitude of the operation. This rate has been constantly lowered as a result of a better understanding of renal function, improvements in anesthesia and in technique. Prostatectomy is never an emergency procedure. In the large majority of cases urethral catheter drainage is satisfactory; it relieves the emergency and allows sufficient time to make the necessary functional tests. The obstructing prostate can be removed after the patient has recovered from the effects of urinary retention and has been suitably prepared. Age *per se* is no contraindication to operation.

The marked difference in the mortality rate following operation by urologic surgeons and by general surgeons suggests that specialized care and long-continued preparation are of decided advantage to the patient. Deaver found 6.9 per cent mortality in a compiled series of 4654 cases of suprapubic prostatectomy. If all series of 100 cases or over were removed, thereby eliminating the work of most urologic surgeons, the mortality rises to between 20 and 30 per cent. Whiteside in 1905 noted a general mortality of 20 per cent. Ten years later he reviewed the work of thirty-four surgeons with data on 1432 cases. About one-half the surgeons contributed 820 cases. These men were experienced in the removal of the prostate; the mortality in their cases was less than 3 per cent. In the remaining cases the mortality was 26 per cent.

Pauchet, an experienced urologic surgeon who has done much to reduce the mortality of the operation, reported four series of 100 cases each. In the first 100 cases, ten patients died; eight died in the second series; six, in the third; and only four, in the fourth. Freyer, who has done over 1500 prostatectomies, states that his mortality diminished from 10 per cent in the first 100 cases to 3 per cent in the last 200.

Liebig reported a large series of cases which permits a contrast of mortalities not only in regard to the period in which the operation was done, but also the type of operation performed. The mortality for the single-stage suprapubic operation was 8.38 per cent in 2958 cases done between 1912 and 1916. In 2379 cases operated on between 1917 and 1922 the mortality was 7.9 per cent. In the two-stage suprapubic operation the mortality was 10.2 per cent in the first period, and 4.3 per cent in the second.

The most recent large series of cases is that of Hunt, who reported a mortality of 5.4 per cent in 1000 cases operated during the last eight years. In 140 consecutive cases, after adequate preoperative treatment, there was only one death. The one-stage operation was performed in 72 per cent of Hunt's cases, and the Pilcher bag was used in 850 cases.

Perineal prostatectomy was successfully introduced into this country by Young in 1903, and his pupils have yielded some remarkable results in the mortality rate. Young has two series of cases, 166 and 198 consecutive cases, each without a fatality. Men trained by Young have reported mortality rates of less than 3 per cent. The operation has never gained popularity because of the skill in technique necessary for successful performance.

Regardless of the method used, prostatectomy has become a benign operation when proper care is given to diagnosis, preparation, preoperative and postoperative treatment.

A. J. Scholl and A. A. Kutzmann,
Los Angeles.

Bacteriology

Inherited "Scrofulous Diathesis."—In the prebacteriologic era of clinical medicine susceptibility to infectious diseases was usually referred to assumed inherited "physical types," "constitutions," or "diatheses." The conception of inherited "diatheses" was quite generally discarded with the development of bacteriology. That there is, however, an element of truth in these earlier hypotheses is indicated by recent studies from the department of animal pathology, Rockefeller Institute.

Lewis and Loomis [1] report that inbred guinea-pigs show distinct familial differences in their natural resistance to tuberculosis, which differences are roughly correlated with their inherited capacities to produce hemolysins and agglutinins, with their hereditary susceptibilities to anaphylactic reactions, and with the size and type of the local lesions produced by intracutaneous inoculation with inflammatory agents. The evidence thus far available leads these investigators to believe that these differences are "transmitted by the blending type of inheritance and are, therefore, controlled by multiple characters, . . . certain of which are apparently recessive in nature."

W. H. Manwaring, Stanford University.

REFERENCE

1. Lewis, P. A., and Loomis, D.: Journ. Exper. Med., 1928, Vol. xlvii, p. 437, p. 449.

Neuropsychiatry

Traumatic Hysteria vs. Malingering.—Medical men insist on drawing a distinction between traumatic hysteria and malingering. The basis of differentiation consists in the conscious or unconscious quality of the underlying motivation. It has been said that the malingerer deceives others, while the hysteric deceives himself.

It is conceded by all that in both hysteria and malingering there are symptoms of disease or disability without organic basis. It is also conceded that the manifestations in both cases are actuated by some such motive as a claim for compensation. Those who have studied closely the hysterical personality or temperament have had no difficulty in observing that its fundamental feature is a character defect exactly like that which underlies malingering.

The following opinion concerning traumatic hysteria, expressed by Dr. F. X. Dercum in his book entitled "Rest, Suggestion in Nervous and Mental Disorders," represents, I believe, the experience of all neuropsychiatrists who have had an opportunity of studying the matter closely: "The hysteria observed in litigants is provoked not by trauma, not by fright, but is the direct result of the psychology of compensation; namely, of the recognition by the plaintiff that the success of his claim for compensation depends upon the existence and persistence of symptoms. For this reason treatment, no matter of what character, is without avail. The plaintiff neither gets well nor improves, and this situation may continue indefinitely, sometimes for years; indeed so long as any hope of settlement persists in the plaintiff's mind. However, all medical attendance ceases with settlement. The symptoms disappear, the plaintiff forgetting all about them. The immediate absence of the plaintiff from physicians' offices and hospital clinics, the moment the money has been paid him, is one of the notorious and striking facts of compensation hysteria."

Students of malingering have devised various methods for differentiating it from organic disorders of all kinds, but have not been able to furnish criteria for its differentiation from hysteria. "Nothing, it may be said, resembles malingering more than hysteria; nothing hysteria more than malingering. In both alike we are confronted with the same discrepancy—between fact and statement, between objective sign and subjective symptom—the outward aspect of health, seemingly giving the lie to all the alleged functional disabilities. . . . We may examine a hysterical person and a malingerer—using exactly the same tests—and get precisely the same results in one case as in the other. The finer the methods that we employ to test the genuineness of their complaints, the reality of their objective phenomena, the more do they—in hysterical individuals—yield results which in a nonhysterical person would be held as proof of positive deceit. In short, anyone who has had much experience of hysteria comes inevitably to the following conclusion: tests for malingering holding valid with reference to organic diseases are invalid in reference to hysteria."[1]

It is the writer's opinion that we are dealing here with a distinction without a difference. It is, moreover, the writer's opinion that insistence on this distinction serves only to lend professional support and respectability to malingering by applying to it a technical misnomer.

The fact that hysteria is held to be compensable serves to manufacture cases of hysteria or malingering—whichever you wish to call it.

The French Government, during and since the World War, has ruled on the advice of the Société de Neurologie de Paris as follows: "In general, purely hysterical manifestations entitle one to no recompense. Exceptionally, a percentage of disability may be allowed somewhere between zero and 20 per cent, but in no cases shall the latter figure be exceeded."

If the United States Government, state industrial commissions, and industrial insurance companies would adopt a similar ruling, the incidence of so-called traumatic hysteria would be reduced to a negligible minimum.

Aaron J. Rosanoff, Los Angeles.

REFERENCE

1. Jones, A. B., and Llewellyn, L. J.: Malingering. Philadelphia, 1918.

Tuberculous Bacilluria.—1. By the repeated routine inoculation of urine into guinea-pigs it is possible to demonstrate that tubercle bacilli are present in the urine of a high percentage of patients who suffer from bone and joint tuberculosis (37 per cent of adult patients and 13.8 per cent of juvenile cases).

2. In many cases this tuberculous bacilluria is unaccompanied by the ordinary symptoms of renal tuberculosis.

3. There is no evidence to support the belief that the presence of tubercle bacilli in the urine is the result of an excretion of them from the blood stream by the kidney.

4. It is reasonably certain that the presence of tubercle bacilli in the kidney urine means the presence of tuberculous lesions in the kidney.

5. Tuberculous lesions of the male genitals probably arise secondarily to tuberculous lesions in the kidney and cause the presence of a tuberculous bacilluria.

6. The initial renal lesions frequently heal. Less frequently they steadily progress to complete destruction of the kidney and death of the patient.

7. Minor and major lesions probably can be distinguished from each other on a basis of symptoms and urinary findings.

8. Minor lesions should be treated conservatively because of their tendency to heal; major lesions should be treated surgically where this is feasible.

9. In every case of tuberculosis, but in particular in those which present evident lesions of hematogenous origin (*e. g.,* bone and joint tuberculosis), the possibility of renal infection should be borne in mind. Examination of the urine and its inoculation into guinea-pigs should be made routine, instead of being delayed until symptoms appear. Careful surveillance of the urinary tract is as necessary as repeated examination of the chest, and this can best be carried out by repeated routine examination of the urine.—*R. I. Harris, The British Journal of Surgery,* January 1929.

Scientific Exhibits at Coronado Meeting—Application for space for Scientific Exhibits should be addressed to Harold A. Thompson, Chairman of the Scientific Exhibit, 233 A Street, San Diego. Space for Scientific Exhibits is regularly set aside at each annual meeting, and is allotted to members upon application, gratuitously.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President
MORTON R. GIBBONS.....President-Elect
EDWARD M. PALLETTE.....Vice-President
EMMA W. POPE.....Secretary

OFFICIAL NOTICES

Coronado Hotels — Accommodations Available.—Hotel del Coronado—American Plan—Six Hundred Guests—Room with bath, $10; room without bath, $9.

Tent City Cottages—American Plan—Three Hundred Guests.—Meals at Hotel del Coronado. Room with bath, $7.50; room without bath, $7.

Blue Lantern Inn—Thirty-Five Guests.—Room with bath, $2.50; room with bath, American plan, $6.

San Diego Hotels.—U. S. Grant Hotel—European Plan—Three Hundred Rooms—Single room and bath, $4; double room and bath, $6; single room without bath, $2.50; parlor, bedroom and bath, $12.

El Cortez Hotel—European Plan—One Hundred and Fifty Guests.—Single room with bath, $4 to $6; double room with bath, $6 to $8; parlor, bedroom and bath, $12 to $18.

San Diego Hotel—European Plan—One Hundred and Ten Rooms.—Single room with bath, $2.50 to $4; double room with bath, $4 to $6; parlor suite, $12 to $15.

Make reservations direct with the hotel or communicate with Dr. Frank H. Carter, 1540 Sixth Street, San Diego, chairman of the Committee on Hotel Reservations.

COUNCIL MINUTES

Minutes of the One Hundred and Seventy-Eighth Meeting of the Council of the California Medical Association

Approved at the One Hundred and Seventy-Ninth Meeting of the Council

Held in Conference Room No. 2 of the Los Angeles Biltmore, Los Angeles, Saturday, October 6, 1928, at 10 a. m.

Present.—Doctors Kiger, Gibbons, Pallette, Hamlin, Kelly, Kinney, Duffield, Shephard, Harris, Rogers, Curtiss, Catton, Kress, Shoemaker, Pope, and General Counsel Peart.

Absent.—Doctors Bingaman, DeLappe, Coffey, and Peers.

1. **Call to Order.**—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. **Minutes of the Council.**—Minutes of the 174th, 175th, 176th, and 177th meetings of the Council were presented. The chairman stated that, as these minutes had been mailed to all members, he would entertain a motion that the reading of such minutes be dispensed with.

Action by the Council.—On motion of Shephard, seconded by Rogers, it was

Resolved, That the minutes of the 174th, 175th, 176th, and 177th meetings of the Council, as mailed to each member thereof, be approved.

3. **Minutes of the Executive Committee.**—Minutes of the 105th and 106th meetings of the Executive Committee were presented. The chairman stated that the minutes had been mailed to all councilors and that all important matters contained therein had been placed on the present Council docket.

Action by the Council.—On motion of Gibbons, seconded by Duffield, it was

Resolved, That the reading of the minutes of the 105th and 106th meetings of the Executive Committee be dispensed with.

4. **Committee on the Constitution.**—The secretary read a letter from Dr. Percy T. Magan, chairman of the Committee on the Constitution, which stated that the committee would not have a report to submit for the October Council meeting. Doctor Kress stated that Doctor Magan was at present in the East, and that he had been informed that the committee would submit a report at the January meeting of the Council.

5. **Medical Practice Act Committee.**—George H. Kress, chairman of the committee, presented the report of his committee, which outlined the activities of the meeting of the State Board of Medical Examiners with representatives of the various medical schools. Doctor Kress stated that at that meeting it had been agreed that a fifth year of practical work as an intern or public health worker in addition to the four-year college course was desirable; that the acceptance of the certificates of the National Board of Medical Examiners in lieu of California examination be optional with the Board of Medical Examiners; and that although a basic science law was desirable, no action be taken at this time.

Doctor Kress requested that his committee be continued.

Action by the Council.—On motion of Kiger, seconded by Duffield, it was

Resolved, That the report of the Committee on the Medical Practice Act be accepted, and the committee be continued.

Doctor Duffield stated that he was in favor of immediate action on the basic science law. Doctor Kress then explained, to the satisfaction of Doctor Duffield, why action at this time was not advisable.

6. **Redistricting the Council.**—Doctor Rogers, chairman of the Committee on Redistricting the Council, stated that he would have a written report for submission at the spring meeting, together with a chart of the state showing proposed plans for redistricting the Council.

7. **Woman's Auxiliary.**—The "Underlying Principles that Shall Govern the Formation and Regulation of the Woman's Auxiliary of the California Medical Association," were read by the secretary.

It was decided that the suggestion of Mr. Peart that no provision of the Constitution or By-Laws should be amended without the approval of the Council, should be included as an integral part thereof. Also that the second sentence of Section 2 of the Advisory Board should read, "The Woman's Auxiliary of a county or state, etc.," and the last sentence under "Meetings" should read: " . . . not attend county medical society meetings except on invitation from the proper county medical society officials."

8. **Orthopedic Fee Schedule.**—A fee schedule for orthopedic work performed under the Crippled Chil-

dren's Act, as prepared by the State Board of Health, was presented to the Council.

Doctor Shephard called attention to the existing situation in Santa Clara County regarding clinic to be carried on by the Society for Crippled Children.

The advisability of discussing the matter with Doctor Dickie, director of the Department of Public Health, was then brought up, and it was felt that since the Department of Public Health had been cooperating with the Association, the question should be discussed with Doctor Dickie.

Action by the Council.—On motion of Kress, seconded by Kiger, it was

Resolved, That a special committee of which Doctor Shephard shall be chairman be appointed, consisting of two other members suggested by Doctor Shephard; and that this committee be requested to confer with Doctor Dickie and to make a survey of the whole matter and report at the next meeting of the Council.

The following amendment to the motion was then made and carried unanimously:

Resolved, That there be added to the committee as ex-officio members, the secretary and the general counsel of the Association.

9. **Committee on Clinical Prizes.**—George Dock, chairman of the Committee on Clinical Prizes, submitted the report of his committee, in which it was suggested that further publicity be given the contest in the journal.

Action by the Council.—On motion of Kress, seconded by Catton, it was

Resolved, That the report of the Clinical Prize Committee be accepted and that it be published in the next issue of the journal.

10. **San Benito County Society.**—Doctor Shephard stated that he had taken up the matter of the inactivity of the San Benito county society with some of its members and was endeavoring to get the men together for a meeting the latter part of the month, at which time an effort would be made to either revive the San Benito county society or to work out some plan of amalgamation with other societies.

Action by the Council.—On motion of Gibbons, seconded by Kelly, it was

Resolved, That the report of Doctor Shephard be accepted.

11. **Honorary Membership.**—The secretary stated that Dr. Lucy Wanzer had been made an honorary member by the San Francisco county society and suggested that like action might be desirable by the state association. It was pointed out that Doctor Wanzer was the first woman physician in San Francisco.

Action by the Council.—On motion of Gibbons, seconded by Catton, it was

Resolved, That Lucy Wanzer, San Francisco, San Francisco County, be recommended for honorary membership in the California Medical Association.

12. **Affiliate Membership.**—Letter from the San Diego county society regarding the membership of R. G. Hulbert was presented. It was suggested that Doctor Hulbert be granted affiliate membership.

Action by the Council.—On motion of Kiger, seconded by Pallette, it was

Resolved, That R. G. Hulbert, San Diego, San Diego County, be granted affiliate membership in the California Medical Association.

13. **Inactive Committees.**—Discussion was had as to the advisability of disbanding various inactive committees.

On motion of Gibbons, seconded by Rogers, it was

Resolved, That the Committee on Enlarging the Scope of California and Western Medicine be discontinued.

On motion of Shoemaker, seconded by Rogers, it was

Resolved, That the Committee on the Gorgas Memorial be discontinued.

On motion of Rogers, seconded by Kelly, it was

Resolved, That the Committee on Group Insurance for members of the California Medical Association be discontinued.

On motion of Rogers, seconded by Kelly, it was

Resolved, That the Committee on Investment of Funds of the California Medical Association be discontinued.

On motion of Kelly seconded by Kress, it was

Resolved, That the Committee on Professional License Tax be discontinued.

On motion of Kress, seconded by Harris, it was

Resolved, That the Committee on the Walter Reed Memorial be discontinued.

On motion of Shoemaker, seconded by Rogers, it was

Resolved, That the Committee on Maternal Welfare be discontinued.

It was suggested that any other committees of the Association which were inactive should be reminded of their duties.

14. **Advertising Contract.**—Contract with Mr. L. J. Flynn covering advertising secured by him for California and Western Medicine was read by the general counsel.

Action by the Council.—On motion of Kress, seconded by Gibbons, it was

Resolved, That Mr. Flynn's contract be drawn to cover the territory of California, Utah, and Nevada.

15. **Advertising in the Journal.**—Discussion was had as to advertising accepted for publication in the journal, and the desirability of having a rule for the acceptance of advertisements, pointed out.

Action by the Council.—On motion of Kress, seconded by Kiger, it was

Resolved, That the secretary, by and with the approval of the Executive Committee or the Council, be and is hereby authorized and empowered to accept applications for advertising in California and Western Medicine and to execute contracts therefor in the form now used, and heretofore approved by the Council; provided, however, that no application for advertising any drug shall be accepted, nor contract made therefor, unless such drug shall conform to the rulings theretofore made by the Council on Pharmacy and Chemistry of the American Medical Association.

16. **Section Meetings.**—Tentative program for the section meetings at the annual meeting was presented. Doctor Kress stated that he felt the proposed plan of holding section meetings at 8:30 was impractical.

Action by the Council.—On motion of Kress, seconded by Kelly, it was

Resolved, That Doctor Kiger and Doctor Pope be authorized to revamp the proposed schedule, making special effort to give adequate time to entertainment features.

17. **Commercial Exhibits.**—The secretary presented the proposed schedule of rates for exhibit space at the annual meeting and stated that it would appear to be very just to advertisers.

Action by the Council.—On motion of Gibbons, seconded by Kiger, it was

Resolved, That the schedule of rates for exhibit space be approved.

It was felt that the local Arrangements Committee should be requested to send in a report later for the information of the Council and that Doctor Kinney should keep in touch with the secretary's office regarding exhibitors and rules.

18. **Program Committee Meetings.**—The question of holding the usual Program Committee and section officers meeting at Santa Barbara in January was discussed, and it was decided that such meeting should be held prior to the next annual meeting.

Action by the Council.—On motion of Catton, seconded by Kelly, it was

Resolved, That the railroad and transportation expenses of section secretaries, or in the absence of the secretary, the chairman of the section, and the members of the Program Committee be paid by the California Medical Association, for the program meeting at Santa Barbara.

The secretary stated that she felt the Program Committee luncheon held at the annual meeting should be dispensed with and that the councilor luncheon should be held on the third day of the meeting. No objection.

19. **Spring Meeting of the Council.**—After discussion, it was decided that the spring meeting of the Council should be held on January 26, 1929, at San Francisco.

20. **Section Program Committee.** — Letter from Doctor Kress regarding the desirability of having a program committee within each section to pass on papers of each section was presented. Doctor Kress stated that in this way it would be possible to attain a higher standard of excellence in papers presented.

Action by the Council: On motion of Kress, seconded by Gibbons, it was

Resolved, That the Association secretary notify each section that the Council believes it would be an advantageous addition to the rules of government of each section if a provision were made for a specific Section Program Committee. Such committee to consist of the chairman and secretary of the section and one other member, to be elected annually, who shall act as chairman of the Section Program Committee.

This program committee would coöperate with the Association secretary in securing a proper range of subjects and with CALIFORNIA AND WESTERN MEDICINE so that manuscripts which were read at the annual session would be put into the best form possible for publication in the official journal.

21. **Legislative Committee.** — Harlan Shoemaker, chairman of the Legislative Committee, reported on the activities of his committee. Doctor Shoemaker stated that a meeting had been held at San Francisco at which the question of promulgating a basic science law was discussed, and it was decided that at present no action should be taken. Doctor Shoemaker pointed out reasons why he felt some action at the next legislature was desirable.

Doctor Shoemaker then stated that he believed the Legislative Committee would be a more representative state committee if the membership were made up of men from various sections of the state instead of a majority being Los Angeles doctors.

Action by the Council.—On motion of Shoemaker, duly seconded, it was

Resolved, That the personnel of the Legislative Committee of the California Medical Association be changed to include Harlan Shoemaker, chairman; Joseph Catton, Junius B. Harris, Lyell C. Kinney, and George Sabichi.

Doctor Shoemaker then stated that some expense had been incurred by the committee and he was desirous of drawing on the fund allotted to his committee. It was the sense of the Council that upon receipt of a request from the Legislative Committee showing expenses incurred, the chairman of the committee should be forwarded the amount of the bill, to be withdrawn from the committee account.

Discussion was then had as to the care of emergency patients injured in automobile accidents from whom it was impossible to collect the cost of medical care. Doctor Shoemaker presented a bill which had been passed in Nebraska, which would make such expenses constitute a lien. Mr. Peart then read Section 4041 of the Code as amended in 1927, which he believed covered some aspects of the situation.

Action by the Council.—On motion of Kress, seconded by Shoemaker, it was

Resolved, That the bill presented by Doctor Shoemaker be referred to the legal counsel for study and that Doctor Shoemaker be authorized through his committee to take such steps as necessary to have the bill passed.

At the suggestion of the chairman of the committee a letter from the Capitol News Bureau on legislative service was ordered filed.

22. **Permanent Convention Headquarters.**—Doctor Shoemaker stated that he had no report to make on permanent convention headquarters, and since his committee was practically inactive it might be well to disband the committee.

Action by the Council.—On motion of Kelly, seconded by Rogers, it was

Resolved, That the Committee on Permanent Convention Headquarters be discontinued.

23. **Committee on Mental Diseases and Expert Medical Testimony.**—Joseph Catton, chairman of the Committee on Handling the Insane presented the report of his committee dealing specifically with the relationship between the Association and the Department of Institutions in connection with the proposed rules for the maintenance and regulation of private hospitals for mental patients. The chairman of the Executive Committee then stated that a letter embodying the views of the Association had been forwarded to Mr. Jensen of the Department of Institutions, but to date no reply had been received.

The general counsel then reported on the proposed Veterans' Commitment Act, stating that he could see no objection to the act, and requesting that he be permitted to make a further study of the act in coöperation with his associate, Mr. Charles Barfield.

Doctor Catton then explained the status of a proposed mental hygiene survey that was to be carried on in the state for which an appropriation of $25,000 was to be asked. Doctor Catton stated that at present there was no activity in the matter.

Doctor Catton requested that the name of his committee be changed, and after discussion, on motion of Kelly, seconded by Gibbons, it was

Resolved, That the present title of the Committee on Handling the Insane be changed to read: "Committee on Mental Diseases and Expert Testimony."

A written report on expert medical testimony and a panel of medical experts was presented to the Council by Doctor Catton. After full discussion, on motion of Shoemaker, seconded by Gibbons, it was

Resolved, That a committee consisting of Doctors Catton and Hamlin and Mr. Peart revise the report and embody the suggestions of the Council in a composite to be submitted to the Bar Association.

Action by the Council.—On motion of Kress, seconded by Duffield, it was

Resolved, That the minimum number of lunacy examinations per month or year as a basis of qualification for the panel be left to the decision of Doctors Catton and Hamlin, and Mr. Peart.

24. **Executive Committee Minutes.**—Action by the Council: On motion of Kelly, seconded by Gibbons, it was

Resolved, That the minutes of the 105th and 106th meetings of the Executive Committee, as mailed to all councilors, be approved.

25. **Doctors Brainerd and Carpenter.**—The Council appointed Dr. William Duffield to bring in resolutions on the death of Dr. Frank B. Carpenter and Dr. Henry G. Brainerd.

26. **Adjournment.**—There being no further business the meeting adjourned.

OLIVER D. HAMLIN, *Chairman.*
EMMA W. POPE, *Secretary.*

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held at the Ethel Moore Memorial Building, January 21, President Liliencrantz presiding. The program of the evening was presented by the staff of Fabiola Hospital, the first paper being a discussion of "Adenoids in the Adult" by Roy Nelson. Doctor Nelson reported nineteen cases in patients varying from nineteen to sixty years of age. The doctor urged careful examination of the throat of patients in this condition, as pathologic changes in this region might well be responsible for various distant lesions as well as the more common changes in the ears and sinuses. Doctor Nelson was followed by Doctor Makinson, who spoke on the ever important subject of "Carcinoma of the Rectum," urging digital and proctoscopic examination together with a careful study of the histories in all patients. Dr. Suzanne R. Parsons, recently of Johns Hopkins Hospital Obstetric Service, spoke on the subject, "Toxemias of Pregnancy—Their Prevention and Treatment." She reviewed the causes of maternal mortality and stated that mortality had increased in the last ten years with very little done to remedy the situation. Twenty-seven per cent of all deaths in obstetric practice are due to the toxemias of pregnancy. Doctor Parsons pleaded for a more serious attempt to educate the lay public to proper care during pregnancy in order to prevent this condition. The last presentation on the scientific program was a moving picture of "Infections of the Hand" presented by Dr. T. C. Lawson and discussed by Doctor Everingham.

A lecture by Dr. Leroy Crummer of Omaha was given in Wheeler Hall on February 1 on the subject, "The Importance of the Study of Medical History." Doctor Crummer is the possessor of many rare old volumes and prints. Professor Alfred Adler of Vienna spoke on February 6 in Wheeler Hall on the "Understanding of Human Nature," and on February 8 on the subject, "How to Deal with the Inferiority Complex." Professor Adler is the guest of the University of California.

GERTRUDE MOORE, *Secretary.*

CONTRA COSTA COUNTY

The Contra Costa County Medical Society met on January 22 at the nurses' home of the County Hospital at Martinez.

There was a change in the originally planned program of medical moving pictures, and instead some very interesting clinical cases were discussed by those present.

The present status of lead poison was discussed in detail as to methods of diagnosis and treatment. It was pointed out that the deleading process should be accomplished by alkalinizing the body fluids; in fact, the approach of acidosis will often liberate stored lead and produce acute symptoms of plumbism.

Dr. I. O. Church, the county health officer, explained the method being used in the study of medical costs as planned by the five-year program of the American Medical Association.

The society was pleased to accept the invitation of the Peralta Hospital staff to have the following meeting at the hospital. A paper by one of the members of the Peralta staff will be given.

S. N. WEIL, *Secretary.*

LOS ANGELES COUNTY

Dr. Reuben Peterson, professor of gynecology and obstetrics at the University of Michigan since 1901, was the guest of the Los Angeles Obstetrical Society at dinner at the Jonathan Club on the evening of February 7. Following the dinner he addressed the county medical association at Patriotic Hall on "The Determination of Risk of Gynecological and Obstetrical Patients." His paper detailed the result of some 1700 patients operated upon at the University of Michigan Hospital, of which 1200 patients underwent elective procedure with no mortality, and something under 500 major operations had a mortality of 3 per cent. He urged a greater conservatism in determining operative procedures and particularly emphasized the additional risk where there were any constitutional disturbances. In the obstetric field he objected strenuously to meddlesome interference, since this invariably increases the fetal and maternal mortality and morbidity. His paper was discussed by Dr. C. E. Phillips, who detailed a survey from Michigan as to mortality from appendectomy, where he found an average mortality of 15 per cent that was reduced to 1½ per cent when the operations were performed by properly trained men under good conditions.

Preceding Doctor Peterson's paper Dr. D. G. Tollefson spoke on "The Value of the Sedimentation Test in Gynecology." Doctor Tollefson, formerly with John O. Polack of Brooklyn, showed clearly the ease with which the test could be performed and, by analysis of some one thousand determinations, pointed out its extreme value in determining the presence of latent infection. A small series where ectopic pregnancy was to be differentiated from adnexal diseases revealed the fact that the sedimentation time was of more value than differential white counts or the temperature curve, since the time was practically normal in the pregnancy and greatly reduced in the presence of inflammatory diseases. Dr. Donovan Johnson detailed the findings in six hundred readings on normal pregnancy with the observation that this was of comparatively little value in the obstetric field, but his findings led him to be enthusiastic over making such a test prior to any operative interference.

Doctor Peterson was made an honorary member of the obstetrical society, the other two members being Dr. J. Whitridge Williams of Baltimore and Dr. Frank W. Lynch of San Francisco. Each was given a membership card suitably embossed on parchment.

WILLIAM BENBOW THOMPSON,
Secretary, Obstetrical Section, L. A. C. M. A.

SAN DIEGO COUNTY

The January meeting of the Mercy Hospital staff was held on the 15th in the nurses' auditorium, in charge of the newly elected officers, President Fox and Secretary Thornton. Two series of cases were selected by the Record and Program Committee: (1) Meningitis, following respiratory infections. (2) Coronary disease.

Following the presentation of these cases by the committee and staff members, very interesting and instructive discussions were given by Doctors Barrow, Stealy, and Redelings.

In coöperating with the ideals of the conducting of staff meetings, as urged by the American College of Surgeons, the Staff Executive Committee has selected Doctors Clark and Eager as members of the Record and Program Committee. The duty of this committee is to initiate the monthly staff meetings, which, in addition to any regular business, shall consist of (1) reports of interesting hospital cases followed with discussion by certain selected members of the staff and general discussion; (2) report of all deaths together with available autopsy findings and diagnosis, followed by general discussion.

* * *

The first staff meeting of the Scripps Memorial Hospital for 1929 was held on January 21. Interesting hospital cases were presented and discussed by Doctors Burger, Copp, and Lazell. Dr. Francis Smith presented an interesting paper on "Observations of the Influence of the Vagus on Cardiac Mechanism." The following officers were elected for 1929: William

R. Eastman, president; Thomas O. Burger, vice-president; W. E. Diefenbach, secretary.

* * *

The January meeting of the staff of the County Hospital was held on January 22. Dr. Charles W. Brown gave a very instructive clinical program, presenting a number of cases from the nose and throat department. Dr. S. A. Parowski, resident physician of the Vauclain Tuberculosis Home, presented a case, "Pulsating Encapsulated Pleural Effusion of the Chest." Officers elected for the present year: Doctor Kellogg, president; Dr. C. J. Osborne, vice-president; Doctor Stevenson, secretary.

* * *

President Churchill of the medical society announced the following committees for 1929:

Program Committee—C. M. Fox, chairman; L. C. Kinney, and D. R. Higbee.

Medical Legal Committee—M. H. Arnold, chairman; T. Coe Little, and E. H. Crabtree.

Councilors-at-Large—H. C. Oatman and Martha Welpton.

Membership Committee—B. J. O'Neill, chairman; F. J. Ratty, and Ray Lounsberry.

County Hospital Committee — C. E. Rees and Charles William Brown.

Child Welfare Committee—Willian B. Mahan, chairman; Marjory Potter, Rieta Hough, A. J. Thornton, and S. J. McClendon.

* * *

In the death of Dr. Thomas L. Magee at the age of ninety-two, the San Diego society has lost not only its oldest member, but one who has been continuously active since 1887, and one of its charter members. Doctor Magee was privileged to practice his beloved profession to within a few days of his death.

ROBERT POLLOCK.

SAN JOAQUIN COUNTY

The regular meeting of the San Joaquin County Medical Society was held at the Medico-Dental Club room, Thursday at 8:30 p. m., February 7.

The meeting was called to order at 8:30 p. m., Dr. Thompson presiding. In the absence of the secretary, Doctor Doughty was elected to be secretary pro tem.

The minutes of last meeting were read and approved.

The application for membership of Dr. R. L. Owens of Lodi was read and referred to the committee on admissions.

President Thompson appointed the committees of the society.

A communication from the National Food Products Company was read and filed.

The following program was presented:

Dr. Miley B. Wesson of San Francisco gave an illustrated lecture on "Infections of the Genital Tract and Their Sequelae."

Doctor Wesson graphically reviewed the anatomy of the genital tract, emphasizing the importance of Colles's fascia and Buck's fascia in lesions of this area. In discussing prostatitis, Doctor Wesson stated that any focus of infection might be the cause of a prostatitis, and that a prostatitis might be the focus of infection in other diseases. Backache and "hernia pains," frequently attributed to industrial injuries, are frequently due to a chronic prostatitis and seminal vesiculitis, and these are relieved by massage, instillations, and irrigations. Median bars are often improved by use of the Kollmann dilator; others require more radical treatment. The lecture was replete with practical suggestions regarding the treatment of lesions of the genital tract.

Dr. Glenn Craig of San Francisco read a paper, "The Care of the Bladder after Abdominal Operations."

Doctor Craig presented the results of the study of four series of cases:

Control group of ninety-nine cases, 60 per cent requiring catheterization.

A group of seventy-eight cases in which one ounce of one per cent mercurochrome was instilled into the bladder at operation; 23 per cent requiring catheterization.

A group of ninety-three cases in which one ounce of one-half per cent mercurochrome was used as an intravesical instillation; 8.6 per cent requiring catheterization.

A group of thirty-nine cases with the same treatment as group three except that one liter of 5 per cent sodium bicarbonate and 60 cc. of white oil was given as a rectal instillation, in addition to the other treatment; 7.6 per cent requiring catheterization.

Doctor Craig concluded that mercurochrome instilled, as described, decreased postoperative catheterization and cystitis. Postoperative catheterization frequently causes infection of the urinary tract.

There was a vigorous and interesting discussion of both papers. The meeting adjourned at 10:30 p. m.

* * *

News.—The annual meeting of the Medico-Dental Club was held at 6:30 p. m., Thursday, January 17, at the Eden Square Café and Coffee Shop, 945 North El Dorado Street.

All members of the Seventh District Dental Society and the San Joaquin County Medical Society were invited.

Dr. Emmet Rixford of Stanford University Medical School was the guest and speaker of the evening. His subject was "Tumor of the Jaw."

Dr. Fred J. Conzelmann, secretary of the Medico-Dental Club,,read a paper, "The Medico-Dental Club—An Adventure in Practical Psychoanalysis."

J. FRANK DOUGHTY, *Secretary pro tempore.*

SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara Medical Society was held on Monday evening, February 11, in the lecture room of the nurses' home of the Cottage Hospital, President N. H. Brush presiding.

The minutes of the previous meeting were read and approved.

The secretary read a short report on the infant mortality rate of the city of Santa Barbara for the last five years.

Doctor Brush announced a lecture to be given by Doctor Grenfell at Recreation Center on February 23.

The principal speaker of the evening was Dr. Verne R. Mason of Los Angeles, formerly associate of medicine in Johns Hopkins University, who gave a most instructive talk on "Damage of the Myocardium," illustrating his points with a wonderful series of lantern slide cardiograms.

The paper was then discussed by Doctors Koefod, Nuzum, Sansum, Evans, and Brown.

There being no further business the meeting adjourned. WILLIAM H. EATON, *Secretary.*

SANTA CLARA COUNTY

The regular meeting of the Santa Clara County Medical Society was held on Wednesday, January 16, at the Santa Clara County Hospital, with Dr. E. P. Cook presiding. Fifty-eight members were present.

Dr. L. Linquist and Dr. James Lovely were elected as members of the society.

Dr. Dudley Fagerstrom was elected an additional delegate, with Dr. James Bullitt his alternate, to the California Medical Association meeting.

At this time, Mrs. Blakesly, president of the Santa Clara County Parent-Teachers' Association, asked the society's support in examining children of preschool age. A motion to that effect was duly made and carried. This concluding the regular business of the society, the evening was turned over to the staff of the Santa Clara County Hospital. Dr. R. Wilson, superintendent and medical director of the County Hospital, presented in a few words an outline of his program with a yearly report of work done in the hospital for the year 1928.

As has been the custom each year when entertaining the society at the hospital, the program was one of a presentation of clinical cases. Doctor Wilson gave a résumé of the building program for the past twelve months which consisted of the following additions: A new wing on the south end of the hospital which comprises the new obstetrical department with its twenty-six beds and two well-equipped delivery rooms; the pediatric department, which cares for thirty patients; the interns' quarters which were reconstructed and equipped with new furniture and are now equal to any of the kind on the coast or in the country. At the present time there is under construction on the north end of the grounds a fifty-bed preventorium for children which will be a real addition to the institution.

Within recent weeks there has been a reorganization of the staff of the hospital, and at the present time there are between twenty-five and thirty visiting doctors for the hospital. Within recent months, a dietitian has been secured and that department has improved considerably.

Papers were given and cases presented by the following:

Doctor Ianne, the resident tuberculosis specialist, discussed phrenicotomy in the treatment of pulmonary tuberculosis with cavitation and presented two patients who have been cured by that method of treatment. He also presented a patient with pulmonary tuberculosis complicated by sinus infection who was cured after an operation for submucous resection and antrum drainage had been done by Doctor Roberg. Doctor Roberg discussed the surgical procedure. Doctor Ianne also presented two patients with pulmonary tuberculosis with a complication of diabetes mellitus. Doctor Schmitt, who has been carrying on the diabetic part of the treatment, discussed the treatment and showed the marked improvement in the condition of the patients.

Doctor Dahleen read a paper on "Polycystic Kidney" and discussed a case which has been operated upon recently in this hospital for removal of such a kidney.

Doctor Burchfiel, county health officer, made a few announcements in regard to his work and asked the full coöperation of the members of the profession in the work of public health. Doctor Fagerstrom presented a very interesting case of osteomyelitis with multiple involvement.

Doctor Whitaker presented a patient who had had multiple surgical operations, the majority of which were major operations. The first operation took place when the patient was only seventeen months old and the last one, a nephrectomy, was done in this hospital in September 1928. The patient was at the meeting in person to show the excellent condition of her health in spite of her numerous surgical experiences.

Doctor Anderson presented a series of cases of digit injuries which would appear to be trifling, but when fully studied with the help of the x-ray, frequently prove to be more serious and important than contemplated.

Doctor Lackner discussed a case which was admitted to the hospital during the fall of 1928 which presented a complicated clinical picture. The patient, in extreme shock, was taken to the surgery with a provisional diagnosis of perforated gastric ulcer, and on opening of the abdomen, it was found full of fresh blood and blood-clots. An unsuccessful search was made for the bleeding point, but as the bleeding had stopped, nothing further was done and the abdomen was closed. The patient later came to postmortem, and the autopsy findings, which consisted of a primary carcinoma of the liver, were discussed and shown by Doctor Proescher. Doctor Proescher also presented an interesting specimen of syphilis of the lung.

Doctor Wilson closed the evening's program by presenting a very interesting case of cancer of the rectum which was treated by x-ray and electric coagulation and a colostomy. After extensive treatment over some months the cancer disappeared and the colostomy was closed, the sigmoid and rectum functioning perfectly.

The doctors then adjourned to the dining room, where refreshments were served.

C. M. Burchfiel, *Secretary.*

SANTA CRUZ COUNTY

The February meeting of the society was held at Alexander's Villa, Boulder Creek, Thursday, February 14. In anticipation of the Italian dinner, for which this particular place is well known in Santa Cruz, the routine business of the evening was dispensed with. Following the dinner the guest speakers, Doctors Miley B. Wesson and Craig of San Francisco delivered papers. Doctor Craig presented interesting data on the prevention of postoperative catheterization following the instillation of one-half per cent mercurochrome at the time of operation. Doctor Wesson's paper had to do with the general subject of "Diseases of the Prostate," and was illustrated by carefully prepared slides. Both diagnostic and therapeutic procedures were emphasized. Discussion on both of these papers was led by Dr. Stanley Dowling of Santa Cruz.

The following members were present: Doctors Congdon, Cowden, Dowling, Eiskamp, Farmer, Fehliman, Harrington, Hatch, A. L. Phillips, W. A. Phillips, Randall, and Woodard.

Samuel B. Randall, *Secretary.*

SONOMA COUNTY

A joint meeting was held by the Sonoma, Napa, Solano, Lake, and Marin county societies January 17 at the Sonoma Mission Inn. Mendocino County was invited, but not represented.

The meeting was called to order by Dr. J. C. Johnstone, president of the Sonoma County Medical Society, following dinner. The meeting was to promote greater coöperation and fraternalism among the profession and to exchange ideas regarding a tuberculosis sanatorium and preventorium for the conjoined use of the five counties.

Dr. Morton Gibbons and Mr. Hartley Peart gave very inspiring talks on coöperation of the profession and on the problems confronting the council and the state society.

The five-county tuberculosis sanatorium and preventorium was discussed, and reports from different counties indicated that they were in favor of a joint hospital. Sonoma reports that $75,000 has already been appropriated by that county.

The following resolution was adopted:

Whereas, Representative members of the medical profession and members of the county medical societies of Sonoma, Napa, Lake, and Solano counties assembled at the Sonoma Mission Inn, this seventeenth day of January 1929, having fully considered the matter of establishing a tuberculosis hospital for the said counties and for the county of Mendocino, do hereby resolve: That we do hereby approve the establishment of a tuberculosis hospital for the counties of Sonoma, Napa, Lake, Solano, and Mendocino.

Meeting adjourned at 10:30 p. m.

J. Leslie Spear, *Secretary.*

STANISLAUS COUNTY

The February meeting of the Stanislaus County Medical Society was held at the Hotel Hughson, February 8. Following the usual six-thirty dinner, the meeting was called to order by the new president, Dr. F. J. Peter.

Those present were: Doctors Surryhne, Finney, Mottram, Yocum, Collins, Falk, Robertson, Reamer, Hagedorn, Bemis, W. Smith, Hartman, Maxwell, Morris Jr., Hennemuth, Peter, Hiatt, Gould, Pearson, DeLappe, McPheeters, Field, and the speakers of the evening, Doctors Harry E. Alderson and Stuart C. Way of San Francisco.

The committee on school affairs reported that the Attorney-General had not passed on blanks used by the school physicians and that a report would be given following his action.

A discussion of fees for vaccination followed. Doctor Gould moved, and Doctor DeLappe seconded the motion, that for the next two weeks all vaccinations be done for one dollar a piece, and after that the regular fee be charged. A notice was to be put in the paper to this effect. After considerable discussion the motion was carried.

The president appointed the following program committee for the ensuing year: Doctors Collins, DeLappe, Finney, Maxwell, McPheeters, Reamer, and Robertson.

Following the business meeting, Doctor Harry E. Alderson, clinical professor of dermatology, Stanford University Medical School, demonstrated by lantern slides, selected dermatological cases of interest to the general practitioner. Dr. Stuart C. Way, assistant clinical professor of dermatology, Stanford Medical School, demonstrated by lantern slide how to determine the degree of malignancy in skin cancer.

The society expressed their thanks to Doctors Alderson and Way for their excellent papers.

There was no further business, and the meeting was adjourned.

R. Stewart Hiatt, *Secretary.*

YOLO-COLUSA COUNTY

The Yolo-Colusa Medical Society met in the Hotel Dale, Williams, at 7 p. m., January 30. The following members were present: President Pulford in the chair, Doctors Keith, Poage, E. E. Larson, C. H. Fairchild, Salter, Desrosier, Bell, Cooper, and Bates. The following visitors were also present: Etta S. Lund, M. D., of Willows and E. L. Hickock, D. D. S., of Colusa. After a supper the meeting was opened and the minutes of the last meeting were read and approved. A number of communications were next read, discussed and filed.

The following officers were then elected: Ney M. Salter of Williams, president; G. W. Desrosier of Colusa, vice-president; W. E. Bates of Davis, secretary-treasurer; F. R. Fairchild of Woodland, delegate; J. E. Harbinson of Woodland, alternate.

Dr. Leo P. Bell of the Woodland Clinic presented a short description of his travels and impressions on a recent clinical trip through Cuba and the clinics of the East. He attended the meeting of the Pan-American Medical Association, held in Havana from the 29th of December to the 4th of January 1929, as a member of the party of Dr. W. J. Mayo of Rochester Minnesota.

The medical situation in Cuba is in a very bad way. The classes in the medical schools are very large with about three thousand students in all. The equipment is poor and the clinical material inadequate. There is a great overproduction of doctors in Cuba which has greatly reduced the financial returns of the individual doctor.

The so-called hospital clubs, which are private insurance companies that had their origin some fifty to seventy-five years ago, dominate the medical situation. Their members pay $2 a month and receive elaborate medical care in the hospitals and are furnished social relaxation in their clubrooms. There are six large hospital clubs in Havana with membership ranging from 50,000 to 65,000 each. There are about two hundred smaller clubs. These clubs are growing very rapidly and own the largest and finest hospitals in the island. It is impossible for the medical profession to exercise control of them.

Doctor Bell visited Santiago and while there flew back in company with Dr. W. J. Mayo to Havana in the endeavor to arrive at the bedside of the late Tex Rickard, who, however, died before they could reach Miami.

While in the East, Doctor Bell visited the new hospital center in New York City, the Cleveland Clinic, various hospitals in Chicago and Minneapolis, and made an extensive visit at the Mayo Clinic.

It is his impression that group medicine and the consolidation of hospitals is making very rapid progress in the United States. This consolidation is to a great extent an economic necessity owing to the cost of medical care. Great interest is being shown by all medical people throughout the East in their endeavor to lower the cost of hospitalization to the middle class of people.

He believes that some form of hospital insurance will be forced on the medical profession by the people within the next ten or fifteen years. This form of insurance has already been started in several towns in Florida and is widely gaining popularity in Mexico. It is his desire to warn the medical profession that they must be on the alert for this change. For if it is controlled by the medical profession in its beginning it will not pauperize the doctors as it has done in Cuba.

After a free discussion of the subject-matter the meeting then adjourned.

W. E. Bates, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Alameda County—James Eaves, E. Gordon Fletcher, Homer Pearson Strubble, and W. F. Williams.

Contra Costa County—E. B. Todd and D. C. Wise.

Imperial County—Ira B. Bartle.

Los Angeles County—Jean Gordon Kinney, L. L. Craven, Clarendon A. Foster, Julius Frankl, Ernest S. Gasteiger, Nadina Kavinoky, George F. Keiper, E. D. Kilbourne, Richard R. McGovney, Norman K. Nixon, Albert A. Peterson, Marcus H. Rabwin, Francis L. Rogers, David A. Schmidt, Marguerite J. Scholl, Orville J. Sloan, and Kenneth W. Taber.

Monterey County—Walter Harold Farr and Ralph A. Workman.

Napa County—Charles A. Graves and Richard E. Poole.

San Bernardino County—Royall H. Bandelier, Francis E. Clough, Oram I. Cutler, Richard E. Dowd, Emanuel C. Ehlers, and Thomas I. Zirkle.

San Diego County—J. C. Elliott King and William J. Ryan.

San Francisco County—Alden H. Alexander, Paul S. Barrett, David K. Chang, Glenn R. Craig, Curtis L. Falk, Charles D. Fletcher, August E. Gauthier, Clyde D. Horner, Bernard Kaufman, Christopher Leggo, Patrick Joseph Mangan, Wilfred C. McKinnon, Anna M. Mosgrove, Edgar J. Munter, Gunther W. Nagel, Gerasim S. Nazarin, Ellsworth F. Quinlan. Reuben Ratner, George A. Trueman, and Henry L. White.

San Joaquin County—E. Ishikawa.

San Luis Obispo County—Willis Dole Butler, Allan F. Gillihan, Paul K. Jackson, Lyman T. Wade, and Harry McGarvey.

Santa Barbara County—Lawrence F. Eder and W. R. Hunt.

Santa Clara County—James Lovely, Dell T. Lundquist, and Leslie S. Whitaker.

Santa Cruz County—J. Harrington and Oscar Chauncey Marshall.

Transferred Members

William S. Kiskadden, from Imperial to Los Angeles County.

Charles L. Ianne, from Alameda to Santa Clara County.

Deaths

Abbott, Philip Fanning. Died at Oakland, January 27, 1929. Graduate of Cooper Medical College, San Francisco, 1901. Licensed in California, 1901. Doctor Abbott was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Brunig, Henry Daniel. Died at Los Angeles, January 26, 1929. Graduate of Kansas City Medical College, Missouri, 1898. Licensed in California, 1921. Doctor Brunig was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Cipes, Joseph S. Died at Los Angeles, February 3, 1929. Graduate of Temple University School of Medicine, Philadelphia, 1910. Licensed in California, 1920. Doctor Cipes was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Coates, Benjamin Oscar. Died at Los Angeles, December 20, 1928. Graduate of Trinity Medical College, Toronto, 1892. Licensed in California, 1900. Doctor Coates was a member of the Los Angeles Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Hamlin, Francis Allan. Died at Bakersfield, February 1, 1929. Graduate of Cooper Medical College, San Francisco, 1908. Licensed in California, 1908. Doctor Hamlin was a member of Kern County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Ward, Edwin Davis. Died at Los Angeles, January 21, 1929. Graduate of the College of Physicians and Surgeons, Los Angeles, 1907. Licensed in California, 1908. Doctor Ward was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

NEVADA STATE MEDICAL ASSOCIATION

R. R. CRAIG.....President
W. A. SHAW.....President-Elect
H. A. PARADIS.....First Vice-President
R. P. ROANTREE.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

ELKO COUNTY

On January 8, the Elko County Medical Society elected the following officers for 1929: R. P. Roantree, president; W. A. Shaw, vice-president; John E. Worden, secretary; C. W. Eastman, councilor.

The following resolution was passed unanimously at the regular meeting of the Elko County Medical Society, Tuesday, January 8:

Be It Resolved, That the members of the Elko County Medical Society deeply regret the passing of their fellow member and friend, Dr. Daniel H. Pettingell of Midas.

Be It Further Resolved, That a copy of this resolution be sent to his widow, and be placed upon the minutes of this society.

News Item.—The staff of the Elko General Hospital elected the following: John E. Worden, chief of staff; W. A. Shaw, vice chief of staff; W. A. Haas, secretary.

JOHN E. WORDEN, *Secretary.*

WASHOE COUNTY

The regular meeting of the Washoe County Medical Society took place at the Sciots Club, Reno, on the evening of February 11. Dr. J. L. Robinson, president, occupied the chair. In the absence of case reports, Doctor Robinson stated that the proposed Community County Hospital Bill was still pending in the Senate Committee. A similar bill has been brought up in the Senate at the two former sessions of the legislature, but owing to the "jokers" which had been tacked on the bill, it passed into the usual political limbo. However, Doctor Robinson said that the bill had a good chance of passing now, as many of the previous objections had been eliminated.

In order to arouse community interest in the same, the president stated that, in company with the secretary, they had appeared upon invitation before a number of civic organizations to show why the bill should pass and to set forth the community need for such a hospital. At every place the bill was endorsed, and there seemed to be more public interest shown over it at this time than at any previous endeavor for its passage.

The subject of the scientific program was a symposium on the prevailing epidemic of grippe.

Dr. Arthur Grover, pathologist, spoke on the bacteriology as at present known in the epidemics. He detailed the finding of the Pfeiffer bacillus many years ago, but confirmed the opinion held by most bacteriologists that the Pfeiffer bacillus while present in most cold infections, as well as grippe, was not the causative organism. What that organism is has not up to the present time been demonstrated. The organism, undoubtedly, is a filtrable virus, and possibly in the severe and fatal cases is in symbiosis with other infectious organisms. The great number of sudden deaths were evidently due to passive hemorrhages of the lung accompanied with an acute edema, which necessarily prevented oxygenation of the blood and caused the patient's death. Several types of pneumonia occurred during the course of the epidemic, in which the streptococcus viridans, streptococcus hemolyticus, staphylococcus, alone or usually in combination, were present. Because of the leukopenia, which is a condition of grippe, the patient's resistance is apprcciably lowered, thus making him an easy victim for either severe illness or death.

Dr. A. J. Hood followed with a paper on the history of grippe. This brief paper was well prepared from an historical standpoint. He said that among the earliest observations on the disease, were those of Hippocrates, who reported that it broke out in the winter time, showed a great tendency for relapses, that it complicated itself with severe pulmonary affections, and usually was fatal to weak and fatigued people. The first clearly recognized epidemics occurred in Europe in 1173, and from that date up until 1875 there was a record of 299 epidemics. The disease has swept over the world in epidemic form at regular intervals of about thirty years. It was stated by Doctor Jordan, bacteriologist of Chicago, that in the World War epidemic there were estimated to have been one-third of the entire population of the United States sick with the grippe, and that the death loss was 2 per cent of the sick. This made the staggering mortality of 600,000 deaths traceable to this epidemic. The essayists who were to discuss the treatment of the grippe were not present. In the discussion which followed the papers, Dr. John Tees believed that had mercurochrome been generally known in the

past epidemic, many cases might have been saved. Doctor Creveling described the condition of the upper air passages and told how, by extension of infection, the entire mucosa of the head would present the appearance of a generalized pan-sinusitis.

No business of further importance except a report calling for a committee to investigate certain non-ethical conduct in professional contact.

The meeting stood adjourned to convene at the next regular date, March 12.

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The following are the subjects announced for the Washoe County Medical Society for March:

"Reno's Water Supply. The Polluted Truckee. Why are the People of Reno and Sparks Compelled to Endure Drinking from this Polluted Source When Pure Water Could be Made Available?" by Dr. S. C. Dinsmore, head of the Food and Laboratory Control of Nevada. This paper on this important health topic will be open for general discussion.

THOMAS W. BATH, *Secretary.*

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

CENTRAL UTAH

A regular meeting of the Central Utah Medical Society convened at the Johnston Hotel at Richfield on January 8. A splendid paper was read by Dr. F. F. Hatch of the Intermountain Clinic, on the subject of "Stomach Medicine and Surgery."

We are pleased at this time to report that we now have sixteen charter members in our society. Meetings are being well attended. The next regular meeting of the society will be held at Moroni on February 5.

H. ASA DEWEY, *Secretary.*

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held at the St. Mark's Hospital, Salt Lake City, Monday, January 14.

The meeting was called to order at 8:10 p. m. by President C. M. Benedict. Sixty members and three visitors were present.

The minutes of the previous meeting were read and accepted without correction.

Charge of the clinical program was then turned over to George Roberts, chairman of the Clinical Society of the St. Mark's Hospital.

F. S. Bascom spoke briefly about the need of a new building for the St. Mark's Hospital, which will be built in the near future at the corner of Fourth East and First South streets. He stated that the public should be disabused of the idea that a hospital was solely for the benefit of the doctors. The new St. Mark's Hospital is to be of the hotel type, rather than the pavilion type. The hotel type of hospital is a popular type at the present time, owing to the fact that it is less expensive to operate, and saves the nursing staff much time.

N. H. Pugh reported a case of periesophageal abscess in a patient whose esophagus had been perforated by a small chicken-bone which had lodged for some time in the esophagus. This paper was discussed by R. T. Jellison, J. P. Kerby, and W. Leroy Smith.

Guy Van Scoyoc read a very interesting paper on the differential diagnosis of angina pectoris and a coronary occlusion. The pathogenesis of these conditions was discussed by Orin Oglivie, and five pathological specimens were displayed.

A. L. Huether showed a case of tuberculous hip, with excellent result following a fusion operation.

F. A. Goeltz showed some various types of prostates, and discussed the end-results obtained by operation.

Application for membership, signed by G. F. Jarrad, was read and turned over to the board of censors.

A letter from the American Medical Association was read. This encouraged the physicians to coöperate in every way possible with the committee on the cost of medical care of the American Medical Association by furnishing complete data in the questionnaire, soon to be sent out to various members of the profession, regarding the cost of medical education, and the cost of overhead expense of the doctor.

A letter from the Medical Arts Building Association was read, stating that the lecture hall was not available for further medical meetings.

William F. Beer moved that the president and secretary be instructed to locate a new place of meeting. Seconded and carried.

President Benedict stated that the Program Committee wished to determine the society's will in regard to holding a dinner meeting at the Bigelow Hotel in Ogden, March 25, in conjunction with the Weber County Medical Society, if the latter so wishes. Motion to this effect was made by William F. Beer. Seconded and carried.

The meeting was adjourned at 9:50, after which refreshments were served by the St. Mark's Hospital.

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A joint meeting of the Salt Lake County Medical Society and the Utah State Ophthalmological Society was held in the Convention Room at the Hotel Newhouse, Salt Lake City, Monday, January 28.

Meeting was called to order at 8 p. m. by President C. M. Benedict. Sixty-three members and six visitors were present.

The minutes of the previous meeting were read and accepted without correction.

E. M. Neher read a paper entitled "A Few Suggestions Regarding the Care of the Eye by General Practitioners." This paper was well discussed by L. Stauffer, T. B. Beatty, L. W. Snow, F. Stauffer, F. M. McHugh, E. P. Oldham, John Z. Brown, M. M. Nielson, and G. N. Curtis.

V. P. White read a paper on "Sinusitis," which was discussed by F. H. Raley.

In the discussion of E. M. Neher's paper, T. B. Beatty asked the pleasure of the society regarding an attempt by the State Board of Health to have a bill passed by the state legislature requiring the application of one per cent silver nitrate to the eyes of all newborn babies. It was moved by M. M. Nielson that the matter of presenting a bill before the legislature favoring the prophylaxis of ophthalmia neonatorum be acted upon by the Utah State Ophthalmological Society. This motion was amended by L. Stauffer to read that this subject be referred to the Committee on Public Health and Legislation of the Salt Lake County Medical Society. Motion and amendment seconded and carried.

The following report of the special committee on the meningitis situation in the city was read by T. A. Flood, chairman. "It is the opinion of this committee that the culturing of the throats of all the children in any school would not be of sufficient value to justify this undertaking; that the City Board of Health has already taken all necessary precautions in the present situation; and furthermore, that there are no

valid grounds for the hysteria that seems to be spreading in some localities."

A letter from Surgeon-General M. W. Ireland was read, expressing his great appreciation to the members of the medical profession of Salt Lake City for the assistance tendered the Fort Douglas medical authorities from time to time.

A letter from the Utah State Medical Association was read regarding Senate Bill No. 5, proposed by Mr. Candland, providing for a decrease in the personnel of the State Industrial Commission so that there will be only two members after April 1, 1929, and one after April 1, 1931. William F. Beer and John Z. Brown spoke in opposition to this proposed bill, and John Z. Brown moved that it be the sense of the society that it go on record opposing Senate Bill No. 5 of the 1929 state legislature. This motion was amended by J. P. Kerby to read that the Committee on Legislation and Public Health should exercise their efforts in the defeat of this bill. Amendment was accepted by John Z. Brown. This motion was discussed by E. F. Root. Seconded and carried.

The applications of membership to the Salt Lake County Medical Society were read, signed by Dean A. Harvey, M. M. Nebeker, and J. Mercer Anderson. These applications were turned over to the board of censors. G. F. Jarrad and M. E. Bird were elected to membership by a vote of: yes, 52; no, 0.

T. B. Beatty and B. E. Bonar talked for a short time upon epidemic cerebrospinal meningitis.

The meeting was adjourned at 10:20 p. m.

BARNET E. BONAR, *Secretary.*

UTAH COUNTY

The last regular meeting in 1928 of the Utah County Medical Society was held on December 12. Visitors present were: Doctors Oldham and Taylor; state officers present, Doctors Donoher, Critchlow, Le Compte, and Goeltz.

"Nonspecific Prostatitis" was the subject treated by F. A. Goeltz, with discussion.

Discussion relative to proposed state school for feeble-minded followed.

The following resolution: Until finances warrant erection of separate institution, state legislators be requested to use available money to increase facilities for feeble-minded at the State Mental Hospital. This passed.

County dues reduced to $7 per annum.

The officers elected for 1929 were as follows: G. G. Neil, president; G. S. Richards, vice-president; J. L. Aird, secretary-treasurer. Delegates: B. A. Dannenburg, L. D. Stewart, J. K. Beck, and O. E. Grua. Alternates: W. T. Hastler, L. W. Oaks, J. W. Hagan, and A. E. Robison.

* * *

On January 23, 1929, the first meeting of the year, "Anomalous Renal Vessels, with Pictures and Practical Clinical Application of the Pathology Involved" was presented by A. E. Pomeroy.

No business meeting.

J. L. AIRD, *Secretary.*

WEBER COUNTY

The meeting of the Weber County Medical Society was held January 17 at the Hotel Bigelow, President A. H. Aland presiding. Usual dinner preceded the meeting. Minutes of the previous meeting were read and approved.

Communications: A letter from Dr. Ernest A. Summer, chairman on arrangements for the American Medical meeting in Portland, was read. A letter from C. C. Haskell regarding doctors' liability insurance, offering special rates to the doctors if a group plan could be worked out, was referred to Doctors J. D. Harding and W. H. Budge. A plan submitted by Miss Williams for examination of the school children was approved, the doctors to be notified in advance. Suggestions from Miss Williams regarding school nursing were referred to Doctors E. P. Mills and R. L. Draper for investigation and action.

Program for the evening: Dr. M. J. Seidner reported a very interesting case of second and third degree burns of the lower extremities, successfully treated with tannic acid and skin grafts. Discussed by Dr. G. G. Moyes. Dr. Vernon S. Down read a paper on the "Diagnosis of the Contagious Diseases." Discussion by Doctors M. W. McKay and D. K. Barnes.

Meeting adjourned.

GEORGE M. FISTER, *Secretary.*

NEWS

The Holy Cross Hospital Clinical Association held its monthly meeting at the Holy Cross Hospital on the night of January 21.

Dr. J. U. Giesy presented a case of posttraumatic exostosis of the foot, with lantern slides showing the condition which had developed after fracture of the left scaphoid bone.

Dr. William Ward and Intern Clayburg presented the case history and autopsy findings in a case of carcinoma of the right lung. The case was fully described and a very interesting discussion of the diagnosis, symptoms and frequency of incidence followed. Lantern slides were shown.

Dr. E. F. Root presented a case of retroperitoneal sarcoma in a child of twenty-two months, with a worthwhile discussion of such cases in general, autopsy and laboratory reports.

Dr. T. A. Flood exhibited laboratory specimens covering the cases presented, and discussed them from the standpoint of pathology and laboratory findings.

Five Physicians Pass State Examinations.—Five physicians, who successfully passed the examination of the bureau of registration at the recent hearing, were announced recently by Director Golden. They are: Harold D. Clayberg, Oak Park, Illinois; Harold L. Snow and Earl F. Wight, Salt Lake City; Edwin C. Brinkerhoff, Bicknell; LaVille Hendricks Merrill, Richmond.

Applicants who were granted licenses to practice medicine on the basis of reciprocity: Dean A. Harvey, Pleasant Grove; Arnold LaMar Graff, Cedar City; Leland M. Evans, Mohrland; James S. Prestwich, Moroni; John A. Thorson, Sandy; Alexander C. McKean, Salt Lake City; Albert R. Taylor, Provo; Charles B. Beymer, Council Bluffs, Iowa.

Applicants who passed the examination given for obstetricians: Mate D. Chattin, Florence Jackson, Marian N. Wells, Annie R. Clarkson, Lilly S. Winger, Mrs. Lily Fox, Anna Rosina Ueberschaer, Selma Elizabeth Ueberschaer, Salt Lake City; Margaret P. Allmark, Murray.

No Smallpox in Schools.—Writing to the editor of *Ohio Health News* to have the address on his copy of the departmental bulletin changed, Dr. A. M. Keer, medical supervisor of the public schools in Pittsburgh, says:

"We are especially interested here in your campaign for compulsory vaccination in Ohio, for we have that law in Pennsylvania and it is assailed by the fanatics at every session of the legislature. Our law really works, and has in every instance been upheld by the courts. Smallpox is practically unknown in Pittsburgh except for sporadic outbursts occasionally in congested negro labor imported from the South. No school child in Pittsburgh has had smallpox for at least fifteen years, and there is no child in the Pittsburgh public schools who does not have a satisfactory mark or a satisfactory reason for temporary excuse from the immunization. Consequently we wish you all good luck in your effort to protect these people from their own folly.—*Ohio Health News.*

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Readers' Forum; California State Board of Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

University of California Medical School—Fifth Annual Session of Summer Courses for Graduates in Medicine.—The fifth annual session of the summer courses for graduates in medicine at the University of California Medical School will be held June 3-29, 1929, at the Medical School in San Francisco.

Most of the clinical branches will be covered in the morning and afternoon courses, including general medicine, surgery, pediatrics, circulatory diseases, gastro-intestinal diseases, x-ray, orthopedics, urology, eye, nose and throat, neuropsychiatry, pathology, and laboratory diagnosis.

In addition to these regular courses there will be daily midday clinics and on several evenings a week, lectures on general medical topics. These will be open to the medical public.

The Lane Medical Lectures for 1929 will be given in San Francisco at Lane Hall, Sacramento Street near Webster, at 8:15 p. m. on the following dates by Professor Walther Straub of Munich:

April 15—"Recent Developments in Narcosis."

April 16—"Narcotics as a Means of Enjoyment in Theory and Practice."

April 17—"Pharmacology of Heavy Metals."

April 18—"Chemistry and Pharmacology of Digitalis and Its Allies."

April 19—"Chemistry and Pharmacology of Digitalis and Its Allies" (concluded).

There will be moving-picture demonstrations of the manufacture of arsphenamin and of the actions of camphor; time to be announced later.

Plaque Erected to University of California Doctor. In honor of Dr. Emanuel Charles Fleischner, who died in 1926 after eleven years of service on the staff of the University of California Medical School, physician friends in San Francisco have erected a bronze plaque in the corridor of the Hooper Foundation for Medical Research.

The plaque was unveiled this week at a special ceremony attended by representatives of the university administration and a host of members of the medical profession in San Francisco.

Meyer Accepts Plaque.—Dr. K. F. Meyer, director of Hooper Foundation, in accepting the plaque said: "Doctor Fleischner came to the Foundation in 1915 as a voluntary worker. Inspired by a desire to supply the babies and children of the community in which he lived with a wholesome and pure milk he early lent his support to the campaign for certification of this product. And not satisfied with the procedures of bovine tuberculosis control in vogue at that time, he desired to assure himself by laboratory methods of the absolute safety of the milk."

As a result of his work, Doctor Meyer states: "For the first time it was demonstrated that one of the causative organisms of undulant, or Malta fever may be found in a high-grade raw milk. Diligently these leads were followed and the basic structure on which the present knowledge of this disease rests was discovered and developed during the years 1917 to 1920. Unstintingly he supported expensive experiments financially and through his untiring enthusiasm and sense of duty.

Dr. Langley Porter, dean of the medical school, said of him: "As a clinician he was unexcelled; as an investigator—untiring; as a teacher—ardent, vivid and stimulating; as a friend—self-sacrificing, understanding and loyal; as a man—a gentleman, unafraid, in everything that the highest conception of those terms means. May this tablet which we formally unveil today thus serve to remind future generations of fellows and workers in this laboratory of their debt to a noble man, a faithful friend, and a sincere scientist who sowed that others may reap."—*U. C. Clip Sheet.*

School of Medicine, University of Southern California.—Dr. Maurice B. Visscher, for the past three years professor of physiology in the medical department of the University of Tennessee at Memphis, has been appointed professor of physiology and pharmacology in the Medical School of the University of Southern California, according to announcement of Dr. William D. Cutter, dean of the Southern California School of Medicine.

Doctor Visscher graduated from Hope College in Michigan, and received his Ph. D. degree from the University of Minnesota.

He spent a year in the laboratory of Professor Starling in London, and later spent nearly a year working under the direction of Professor A. J. Carlson of the University of Chicago.

He will take up his work in the Medical School of the University of Southern California this summer.

University of California Man Wins Medal of Merit. Dr. Herbert M. Evans, discoverer of vitamin E, who is chairman of the department of anatomy at the University of California, has been awarded the John Scott Medal, according to an announcement made recently on the Berkeley campus.

The John Scott Medal is an annual award by the city of Philadelphia, under an endowment established almost two hundred years ago. Doctor Evans was selected as the latest recipient of this medal for his discovery of the antisterility vitamin E.

Recipients for the John Scott Medal are selected each year by a committee composed of three members of the National Academy of Sciences, one member of the American Philosophical Society, and one member of the University of Pennsylvania. The presentation was made to Doctor Evans by city officials of Philadelphia during his recent visit to the eastern coast.

Among the distinguished scientists who have received the award since 1920 are Hideyo Noguchi for researches on the cause and prevention of yellow fever; Madam Marie Skladowska Curie, for the discovery of radium; Francis William Aston, for the development of the mass spectograph and use of it in the study of "Isotopes"; Sir Joseph John Thomson, for the development of the physics of the electron; Frederick G. Banting, for researches leading to a potent extract of the pancreas, insulin; and Orville Wright, for development of the flying machine.

Nutrition Discoveries.—Three other men working in the field of nutrition have been awarded the medal for research on vitamins. They are C. J. Eijkman, who first produced experimentally a disease like beriberi by feeding polished rice to chickens and called attention to an unrecognized element in food and started the study of dietary disease; Elmer Verner McCollum, who discovered Vitamin A; and Alfred F. Hess, who perfected a method of producing a vitamin factor D in food by ultra-violet light.

The research for which Doctor Evans was awarded the medal was done in the laboratories of the University of California from 1922 to 1927 and represents one phase of his work in nutrition. He is also carrying on research in endocrinology. Doctor Evans is a graduate of the University of California and of Johns Hopkins University. He also did graduate work in Germany.

Appointments to Faculty of School of Medicine, University Southern California.—The first two permanent appointments to the faculty of the newly organized School of Medicine of the University of Southern California have been made in the naming of Dr. Paul S. McKibben, professor of anatomy at the University of Michigan to the chair of anatomy, and Dr. Harry J. Deuel, professor of physiology at the University of Maryland, to the professorship in biochemistry. Announcement of these two department heads was made by President Rufus B. von Kleinsmid and Dr. William D. Cutter, dean of the school.

Doctor McKibben, according to the announcement, holds a bachelor's degree from Denison College, a degree of Doctor of Philosophy from the University of Chicago, and a degree of Doctor of Laws from the University of Western Ontario. Following his graduation from the University of Chicago he was successively an assistant, an associate and an instructor in anatomy at that university. In 1913 he took charge of the courses in anatomy at the University of Western Ontario, remaining there as head of the department until 1927, when he joined the faculty of the University of Michigan.

Doctor Deuel graduated from Carleton College in 1918, served as a junior chemist in the United States Department of Agriculture from 1918 to 1920, and from 1920 to 1923 was a graduate student in biochemistry at Yale University, receiving his degree of Doctor of Philosophy from that university in the latter year. The following five years he served as instructor and assistant professor of physiology in the Cornell Medical School. He became professor of physiology at the University of Maryland in 1928.

Doctor McKibben is a member of the American Association for the Advancement of Science, the Association of Anatomists, and a Fellow of the Royal Society of Canada. He has published articles on the nervus terminalis, eye-muscle nerves, peripheral olfactory apparatus of amphibia, cerebrospinal fluid pressure and brain bulk, and lymphatics. Doctor Deuel holds membership in the Biological Chemists' Society, the Society for Experimental Biology, and the Harvey Society, and has published articles on the digestibility of foodstuffs and intermediary metabolism.

Southern Pacific General Hospital Meeting.—The regular monthly staff meeting of the Southern Pacific General Hospital was held on Wednesday, February 6, at 8:15 p. m. Doctor Josephson, intern, presented an abstract of the interesting literature for January; Dr. Earl N. Greenwood, report of 1928 from the department of physiotherapy; interns and staff, essentials of the clinical and pathological data of the fatalities for January; Dr. A. M. Moody, "Diabetes Mellitus—A Discussion from the Pathological, Biochemical and Theoretical Viewpoints, with Suggestions as to Treatment," with discussion by Dr. Philip King Brown and Dr. B. Kaufman.

College of Surgeons Elects Doctor Hamlin.—Dr. Oliver D. Hamlin of Oakland was elected chairman and San Francisco chosen as the next conference city by the California-Nevada section of the American College of Surgeons meeting held in Los Angeles. Other officers named were: Dr. Charles A. Dukes, Oakland, secretary, and Doctors W. H. Gilbert of Los Angeles, John Dunlap of Pasadena, and John H. Woolsey, San Francisco, councilors.

The Oaks Sanitarium, Los Gatos, in celebration of its fifteenth birthday, held open house during the week of February 15 to 22, 1929. This institution's avowed object is to treat tuberculosis and allied pulmonary conditions scientifically at the lowest possible cost to the patient.

First International Congress on Mental Hygiene.—Clifford W. Beers, founder and secretary of the National Committee for Mental Hygiene, announced recently that the First International Congress on Mental Hygiene, of which he has been elected secretary-general, will be held in Washington, D. C., May 5-10, 1930. Mr. Beers' announcement was made from the offices of the First International Congress on Mental Hygiene, 370 Seventh Avenue, New York City.

The announcement states that the First International Congress is being sponsored by a representative committee of mental hygiene experts, psychiatrists, educators, and distinguished citizens from countries in Africa, from Australia, Belgium, Brazil, Bulgaria, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Japan, Luxemburg, New Zealand, Norway, Porto Rico, Russia, Spain, Sweden, and Switzerland.

"As its name implies," said Mr. Beers, "the Washington gathering will be the first international congress of mental hygiene organizations to be held. Leaders in mental hygiene work throughout the world have been anxious to get together for study and discussion of their common problems. The lack of funds to pay the cost of the congress has now been removed through the gift of the American Foundation for Mental Hygiene. It is the purpose of the sponsors of the congress to invite the participation of all countries and to enlist the coöperation of heads of governments, public officials, as well as private institutions, associations, and individuals."

The regular monthly tournament of the Southern California Medical Golf Association was held at Del Mar, February 16 and 17. About 125 members with their wives, families, and guests were present. Winners in the Saturday afternoon play were: Class A, low gross, Wallace Dodge; low net, Roy Thomas. Class B, low gross, John B. Clark; low net, J. B. Stevens. Class C, low gross, J. M. Harris; low net, Stanley Boller. Eighteen holes were played on the morning of February 17, in which three cups were presented: Low net in Classes A, B, and C being won by C. H. Weaver, W. R. Crane, and M. F. Trainor respectively. A beautiful silver cup was presented by the president, Clarence E. Toland, for low net of the two days' play, which was won by John B. Clark with a score of 143. Our loyal president being very busy with the approaching convention of the American College of Surgeons, nevertheless was present for Saturday's game; going by airplane in the morning and returning in the afternoon. The Association is indebted to Mr. Hugh Cook and Mr. D. M. Wilcox for the opportunity of visiting the beautiful Del Mar district. Many of the ladies and children enjoyed horseback riding and swimming. Negotiations are in progress for a tournament with the Dental Golf Association for the coming month.

American College of Physicians to hold Thirteenth Annual Clinical Session in Boston, April 8-12, 1929.—The American College of Physicians will hold its thirteenth annual clinical session in Boston, April 8-12. Dr. Charles F. Martin, dean of the faculty of medicine, McGill University, is president of the college this year, and Dr. John H. Musser, professor of medicine at Tulane University Medical School is president-elect and will be inducted to the presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson professor of clinical medicine at Harvard Medical School and chief of the Medical Service at the Massachusetts General Hospital is general chairman of all Boston committees having charge of arrangements for the clinical session of the college in April.

The program provides hospital visits, clinics, demonstrations and ward-walks during the forenoons at fifteen different Boston hospitals, and for general scientific sessions each afternoon and evening in the Assembly Room of the Hotel Statler, which will be headquarters. Eminent authorities in their special lines will present the results of their work before an audience competent to appreciate the value of the contributions.

A symposium on deficiencies will take place the first evening of the session, and will be of particular interest because of the fact that deficiencies are nowadays assuming a far more widespread and important rôle than had heretofore been anticipated. They have

come into their own as factors producing acute and chronic disease, on a par perhaps with infections. The committee has secured for the program men who can speak with authority on a variety of aspects of this important subject.

Another special feature is a review of the present status of vaccine and serum prophylaxis and therapy, designed to give the internist a rapid survey of the field. The speaker, Dr. Benjamin White of Boston, is an authority on these subjects and can give the high spots in rapid and yet forceful fashion.

The annual banquet of the college will be held Thursday evening, April 11, when Dr. George E. Vincent, president of the Rockefeller Foundation, will deliver the chief address. The convocation, for the conferring of fellowships, will take place Friday evening, April 12. Dr. Charles F. Martin of Montreal will deliver the presidential address.

Programs and details concerning reduced fares, admission, etc., may be secured from the executive secretary, E. R. Loveland, 133-135 South Thirty-sixth Street, Philadelphia, Pennsylvania.

Pacific Coast Surgical Association.—The Pacific Coast Surgical Association held two days of clinics in Los Angeles, February 20 and 21, and two days of scientific meetings at the Hotel Biltmore in Santa Barbara, February 22 and 23.

Sir Wilfred Grenfell was the distinguished visitor, and spoke on "Pioneer Surgery in Forty Years in Labrador." Dr. Andrew S. Lobingier of Los Angeles spoke on "The Influence of the British Masters on American Surgery.'"

The following officers were elected: Wallace I. Terry, M. D., San Francisco, president; W. B. Holden, M. D., Portland, first vice-president; Fred R. Fairchild, M. D., Woodland, second vice-president; Edgar L. Gilcreest, M. D., San Francisco, secretary-treasurer. The members of the Executive Council are as follows: Thomas O. Burger, M. D., San Diego; Philip K. Gilman, M. D., San Francisco; J. Tate Mason, M. D., Seattle; A. S. Lobingier, M. D., Los Angeles; A. A. Mathews, M. D., Spokane.

Del Monte was chosen as the meeting place for 1930.

The Pan-Pacific Surgical Conference will be held in Honolulu, Hawaii, August 14-24, 1929, under the auspices of the Pan-Pacific Union and at the request of the Pacific Coast Surgical, Roentgenological, Oto-ophthalmological, Orthopedic, and Gynecological Societies and the Hawaii Territorial Medical Association.

Scope and Purpose of the Pan-Pacific Surgical Congress.—In August, 1929, from the 14th to 24th, approximately, the Pan-Pacific Union, through its president, the Governor of the Territory of Hawaii, is ealling a Pan-Pacific Surgical Conference to meet in Honolulu. The Union has held a number of successful conferences of leaders from Pacific lands on the subjects of science, education, the press, commerce, food conservation, fisheries, and most recently, August, 1928, the first gathering of Pan-Pacific women was convened with a program of health, education, government, industry and the professions, and social service.

Following precedent, the Secretary of the Interior of the United States under whose direction are classed the affairs of the Territories of Hawaii and Alaska, has been requested to ask the State Department to transmit the invitations of the Union to the different countries of the Pacific through their ambassadors and representatives in Washington. In the past the State Department has done this with the explanation that the conferences are not official or called by the United States Government, but that the invitations to take part in conferences are placed before the governments at the request of the Pan-Pacific Union.

Object.—The object of the Pan-Pacific Surgical Conference is outlined as follows:

(*a*) To bring together surgeons from countries bordering on the Pacific.

(*b*) To permit the exchange of surgical ideas and methods. To develop an acquaintanceship among the surgeons meeting on a common ground so that they may be instrumental in developing a spirit of good fellowship among the races represented at the conference.

(*c*) The conference is called by the Pan-Pacific Union at the request of the Pacific Coast Surgical, Roentgenological, Oto-ophthalmological, Orthopedic, Gynecological Societies and Hawaii Territorial Medical Association.

Scope.—(*a*) All countries bordering on the Pacific.

(*b*) Subjects to be limited to surgery, its specialties, and hospital standardization.

Program.—(*a*) Each country is to select surgical subjects of particular interest to its workers.

(*b*) Daily program: No routine clinics are to be held. Any man who has any new technique is to be given the opportunity to demonstrate it. Ordinary technique is to be presented only by moving pictures. Case presentations or dry clinics are to be particularly encouraged, these subjects to be presented between 7:30 and 8:30 each morning.

The presentation of papers will take place between 9 and 11 a. m., with only the synopsis to be given by the reader, the full papers having been distributed at least two days prior to the meeting to the three men who are to discuss the paper. All papers are to be published in full in the proceedings.

Round table discussions are to be held from 11 to 12:30 among groups of men who are particularly interested in specific subjects.

One afternoon is to be devoted to a special clinic on leprosy to be held at Kalihi Leprosarium, and one afternoon is to be devoted to hospital standardization. The other afternoons are to be left free for observation of the waves, sunshine, palm trees, and the human element. The evenings are to be occupied with papers, public lectures, and a minimum of formal dinners.

MEDICO-LEGAL

LIABILITY OF PHYSICIANS OR HOSPITALS FOR NURSES' SALARIES

The question of liability of physicians or hospitals for nurse's salary was considered by the Council of the Association, and the Association's legal counsel was requested to submit an opinion.

Excerpting quotations from court rulings, the following is the opinion of Mr. Hartley F. Peart in brief . . . :

"If a physician or hospital requests a nurse to attend or care for a patient at the patient's request or with his consent, may the Labor Commissioner lawfully order the physician or hospital to pay the nurse's salary for her services to the patient?

"This question depends upon whether or not the physician or hospital is, under those circumstances, liable in law to the nurse for her salary.

"Of course, if there is an express contract of hiring and provision is made therein for compensation, the terms of that contract must prevail. In the ordinary case of a physician requesting a nurse to attend a patient, however, there is usually no express contract of hiring. It is to the latter type of case that this opinion is directed.

General Rule

"It has been stated as a general rule that when services are performed on request and no agreement is made in respect to them the law raises an implied promise on the part of the one requesting the services to pay for them.

Exceptions.—"This rule, of course, is subject to many exceptions depending: (1) Upon the peculiar relations of the parties. (2) Circumstances surrounding the hiring. (3) Custom.

Relations of the Parties.—"A well defined exception to the general rule is to the effect that where one summons a physician to care for another if the rela-

tion to the patient of the person who requests the services be not such as imports the legal obligation to pay for them, he is not liable to the physician for his services. This exception has been denominated a general rule by the California courts."

In *McClenahan* vs. *Keyes,* 188 Cal. 547, the court said:

"The general rule is that one who calls upon a physician to render services to another is not liable for those services in the absence of an express agreement to pay therefor."

Confirming this opinion Mr. Peart then cites decisions in which a parent has been exempted from responsibility for services rendered to (*a*) an adult son; (*b*) an adult daughter; (*c*) a daughter-in-law; (*d*) a husband has been exempted from responsibility for services rendered to a wife's relative; (*e*) a brother for services rendered to a brother.

Circumstances Surrounding the Hiring.—"If the circumstances surrounding the hiring of the nurse were such as to lead her to place credit in the physician instead of the patient, the law would raise an implied promise upon his part to pay for her services." (See the case of *Baer* vs. *Williams,* 75 N. J. L. 30, 66 Atl. 961.)

Usage or Custom.—"The question of usage or custom may be important as one of the circumstances surrounding the hiring. If there is a contract of the physician to pay the assistant, no custom or usage will be allowed to be shown to vary that contract as in the case of *Fitzgerald* vs. *Hanson,* 41 Pac. 230. A custom, however, may be important to show what was in the minds of the parties when the doctor requested the services of the nurse. If there is a custom to the effect that the nurse should look to the patient solely for her compensation and if that custom is universal in the particular locality and it is known to both the physician and nurse, then it would be a strong circumstance tending to show that the physician did not contract to pay the nurse's salary."

The general rule is repeatedly worded in various ways. "In *McGuire* vs. *Hughes* the rule is somewhat differently stated and exception is broadened. The Court cited: 'The principle established in these cases, which is a simple restatement of the common law, is that a simple request to perform services for another to whom there exists no obligation of any kind to furnish the services does not create an implied obligation to pay for such services by the person making the request, and that a promise to pay cannot be implied from a simple request that the services be rendered and I apprehend *that this principle is not peculiar to the relation of a physician and his patients, but extends to all cases where services personal in their character, are rendered by one person to another.*"

Following the citation of this opinion and dependent upon it, Mr. Peart states: "We are of the opinion that a nurse who is called by a physician to attend a patient is in very much the same position as a physician who is called by one person to attend and treat another. The same consideration of public policy would seem to apply and, the reason being the same, the same rule should govern. Under the rule established it would appear that if a physician requests a nurse to attend and treat his patient, the law would not raise an implied promise on the part of the physician from the request, in and of itself, to pay for her services, but that there might well be circumstances from which the law would raise that promise.

"Therefore, in the absence of an express understanding upon the matter between the nurse and the physician, whether or not the physician is liable to the nurse for her salary, depends upon the manner in which he employed her, the nature of the conversation that took place, the nature of his request, whether or not the nurse knew that the patient had requested a nurse, whether or not the nurse knew that the patient has requested the doctor to get a nurse; upon the general, uniform, and known custom of the particular locality and upon the nurse's former relations with the physician as to compensation. These circumstances would all be taken into consideration in determining as a question of fact what the agreement was between the nurse and the physician and in determining whether the relation was so understood in the minds of the physician and nurse as would justify the law in raising an implied promise upon the part of the physician to pay the nurse's salary.

"However, in the absence of any express agreement of the physician to be personally responsible, and where the nurse is simply called by the physician at the request of or with the knowledge and consent of the patient, in my opinion there is no liability on the part of the physician, and especially so where it is the custom for nurses to look solely to the patient for compensation."

PROPOSED PUBLIC HEALTH LEGISLATION

Members of the California Medical Association will appreciate somewhat the difficulties facing its executive and legislative committees by scanning the following list of measures already introduced in either the Senate or Assembly of the forty-eighth session of the California Legislature, all of which have direct or indirect bearing on public health activities.

The executive committee and groups for both the northern and southern districts have gone over these various bills in an effort to determine what portions thereof were apt to be detrimental to the public health interests of California. It has not been an easy task. Much work is still before the officers of the Association, to whom these responsibilities have been committed.

Members of the Association who are interested in any of the measures listed below may apply for copies of the Senate Bills (S. B.) to Mr. Joseph A. Beek, secretary of California Senate, Sacramento, and for Assembly Bills (A. B.) to Mr. Arthur A. Ohnimus, chief clerk of California Assembly, Sacramento. After perusal, suggestions may be sent to the central office of the California Medical Association, in care of the secretary, who will forward the information to the proper officers.

I. Proposed Laws—Introduced by California Senators*

S. B. No. 10—*Murphy.* New general law, assistance of aged persons under certain conditions. General provision therein pensioner may receive no other relief in State of California except for surgical or other remedial care.

S. B. No. 29—*Crowley.* New general law, establishing professorship of nursing education at the University of California at Berkeley, appropriates nurses' fund in the sum of Thirty Thousand Dollars ($30,000).

S. B. No. 30—*Crowley.* Amending State Pharmacy Act, statutes of 1905, adds a new section thereto, No. 1½ relating to registration of drug stores.

S. B. No. 36—*Inman.* Amending Section 4225a of the Political Code relating to county health officers, providing that Boards of Supervisors may employ public health nurse, prescribing her duties, etc., also provides that the Board of Supervisors employ dental hygienists under supervision of the Board of Supervisors.

S. B. No. 37—*Inman.* Amending Section 3062 of the Political Code relating to city health officials and employees; similar to S. B. 36, only this bill provides that board of trustees, council, etc., may employ public health nurses and dental hygienists.

S. B. No. 38—*Inman.* Provides proper sanitary condition at railroad terminals for the preservation of the health of employees.

S. B. No. 52—*Crowley.* New general law providing for examination and certification of persons other than registered nurses, engaged in the practice of nursing for compensation, repealing act of May 2, 1919, wherein similar provisions existed.

S. B. No. 102—*Lyon.* Amending Sections 16 and 21

*Names in italics are those of the Senators or Assemblymen who introduced the bills. The number preceding such name is the number by which the bill is known in the Senate or Assembly.

of an act for the prevention of the manufacture, sale or transportation of adulterated, mislabeled or misbranded foods or liquors.

S. B. No. 103—*Rochester.* Creating a commission to select a site for a state hospital for the insane. The commission shall report to the governor not later than February 1, 1930.

S. B. No. 104—*Crowley.* An act to regulate the practice of nursing; to provide for the examination and registration of graduate nurses, and to repeal acts of 1905 and 1913 relative to registration and examination of nurses, also provides in said bill that said act shall be under the supervision of department of occupational standards, etc.

S. B. No. 105—*Crowley.* Amending Sections 11, 12, and 16 of an act to regulate the practice of pharmacy, act of 1905 and amendments thereof providing that all prescriptions filed by duly registered pharmacists must be kept on file and open for inspection by duly constituted authorities for a period of at least two years; provides that failure so to do, person guilty of misdemeanor, punishable by a fine of not less than $50 nor more than $100.

S. B. No. 106—*Crowley.* Act amending Medical Practice Act by inserting therein another new section known as 20½, which provides that anyone impersonating any members of the board, officer or employee thereof, shall be guilty of a misdemeanor. Punishable by fine of not less than $100 or more than $500, or by imprisonment in the County Jail. Medical Board Bill.

S. B. No. 107—*Crowley.* Act amending Section 5a of Poison Act of the State of California, by adding additional terms therein relative to economic poison, etc.

S. B. No. 109—*Lyon.* Act amending Section 2 of cold storage and regulation of refrigerating warehouses, providing that said Board of Health shall cause an examination to be made into the sanitary condition of plants and other places wherein articles of food are stored for a period exceeding thirty (30) days; exempts restaurants, hotels, or exclusively retail establishments not storing articles of food for other persons.

S. B. No. 110—*Lyon.* Amending Section 8 of the act regulating the California egg industry by providing certain standards therein for the classification of grading and labeling of eggs displayed for sale. Somewhat of a skeleton bill.

S. B. No. 111—*Lyon.* Amending Section 15 of an act for the prevention, manufacture, sale and transportation of adulterated, mislabeled or misbranded drugs. Somewhat of a skeleton bill.

S. B. No. 132—*Baker.* New law relating to the reporting of persons injured, providing that the duty of any hospital or pharmacy to which any person suffering from any wound or other injury by his own act, or by the act of another, shall report to public officials of the Police Department, and also stating that physicians and surgeons, nurses, etc., who have under their care or charge any person suffering from any wound or injury by his own act, or by the act of another, or any person who is asked to render aid or treatment to a wounded or injured person, is also to make a report to the appropriate officers; provided that anyone failing so to do shall be guilty of a misdemeanor, and punishable by fine of $500, or jail not exceeding six months.

S. B. No. 143—*Crowley.* An act providing for the examination and certification of persons other than registered nurses, engaging in the practice of nursing, repealing act of 1919, relative to substantially the same matters; all of said act touches upon the qualifications, etc. of nurses.

S. B. No. 182—*Young.* New general law relative to sale, possession, distribution and use of habit-forming narcotics and other dangerous drugs and substances.

S. B. No. 199—*Sharkey.* Amending Sections 1, 2, 7, 13, 15, 18, 21, and 23 of an act creating the State Board of Barber Examiners, providing therein certain rules for barbers to follow in their business, and gives additional definitions relative to barbering.

S. B. No. 201—*Sharkey.* Amending Section 1374, Penal Code, relating to expenses of maintenance in state hospitals of persons charged with crime; providing that same shall be a charge upon the estate of the defendant, or any relative.

S. B. No. 202—*Sharkey.* Amending Section 1373 of the Penal Code, relating to expense of sending defendant to state hospital; providing there shall be a charge upon a relative to his estate.

S. B. No. 213—*Crowley.* Amending Section 12, Medical Practice Act, relating to commissioned officers in the medical corps of the army, navy, and public health service of the United States, providing that the board in its discretion may require the applicant to pass a practical clinical, oral examination given by the Board of Medical Examiners of the State of California before a certificate shall be issued or said board may in its discretion refuse to issue such certificate.

S. B. No. 214—*Crowley.* Act amending Section 9 of the State Medical Practice Act relating to application for certification under said act and increasing certain courses relative to practice of all those coming under the Medical Practice Act. Medical board bill.

S. B. No. 215—*Crowley.* Act amending Section 10 of the Medical Practice Act relating to courses of study required of applicants for certification, changes relative to chiropodists, providing that after July 1, 1930, the minimum requirements of groups five and six and the total number of hours for chiropodists shall be as follows:

Manipulative and mechanical therapy:

Didactic and clinical chiropody	1329 hours
Orthopedics	208 hours
Surgery	128 hours
Group 6. Sixty-four hours:	
Materia medica and therapeutics	64 hours
Total	2625 hours

S. B. No. 216—*Crowley.* Amending Section 70 of the Medical Practice Act and provides additional terms relative to practice of chiropody which shall be unlawful. Medical board bill.

S. B. No. 217—*Crowley.* Amends State Medical Practice Act, Section 14, by adding thereto additional causes for unprofessional conduct and the revocation of license or certificate by virtue of which one licensed to practice in California has authority to practice in sister state. Fourth, (*a*) conviction of a felony in which case the record of such conviction shall be conclusive evidence. Fourth, (*b*) conviction of or cash compromise of a charge of violation of the Harrison Act regulating narcotics in which case the record of such conviction or compromise, as the case may be, shall be conclusive evidence; providing that the use by the holder of any certificate issued under the provisions of this medical act or any prior medical practice act of the State of California of the term or suffix "D. S. C." unless the said holder has been granted the degree of doctor of surgical chiropody after the completion of a full course of study as prescribed by an approved school of chiropody in accordance with the provisions of this act.

S. B. No. 231—*Crowley.* New general law regulating the business of embalmers and funeral directors, and the transportation of and traffic in dead human bodies, creating a state board therefor, and repealing the act of 1915 relative to embalming and funeral directors; said act provides that nothing in the act shall apply to, or in any way interfere with the duties of any officer of any public institution or of any duly accredited medical college; providing that the board may have the same privileges concerning the use of bodies for dissection and demonstration as those granted in this state to medical colleges.

S. B. No. 233—*Murphy.* Act amending the "State Housing Act" providing the conditions relative to

apartments, etc., with sinks, ceiling heights, gas heaters, and ventilation.

S. B. No. 234—*Murphy.* Amending Section 59 of the "State Housing Act" relating to garages, providing conditions under which same must be built.

S. B. No. 258—*Crowley.* Act amending Sections 2, 3, 4, 6, 7, 14, 17, 18, 19, and 20 of an act of 1927 relative to cosmetologists, and contains certain other provisions which were not in the original act relative to permanent-waving machines and further defining cosmetic electricity, etc.

S. B. No. 261—*Crowley.* New general law to be known as a pure milk law of California, defining milk, etc., and repealing act known as act of 1927 providing conditions for the pasteurization of milk under the department of agriculture and supervision of the department of public health. The department of public health of the State of California shall have power to prescribe and enforce rules and regulations for the physical and bacteriological examination of all persons handling or coming in contact with market milk to determine whether or not said persons harbor the germs of infectious disease liable to be conveyed by milk. Persons so examined and found to be free shall be supplied with certificate of health, etc.

S. B. No. 262—*Hurley.* Act to repeal Section 9 of an act to empower the director of agriculture to regulate and control the business of buying and selling fish.

S. B. No. 283—*Maloney.* Act amending Section 19 of the Workmen's Compensation Act, relative to evidence providing that the commission may receive reports of attending or examining physicians or licensed chiropractors.

S. B. No. 310—*Christenson,* Cleveland, et al., relating to the department of institutions amending Section 366 of the Political Code providing for the conditions under which persons may be transferred from any department to any institution by the Federal Government.

S. B. No. 337—*Crowley.* Amending Section 3 of the Narcotic Rehabilitation Act and sections relating to government of the state narcotic hospitals, etc., providing that the court may commit any female addict and drug addicts who are afflicted with tuberculosis or communicable diseases to any state hospital.

S. B. No. 352—*Lyon.* Relating to safety of public bathing places on the seacoast and lakes. Nothing therein relative to medicine and surgery; mostly safety devices.

S. B. No. 379—*Crowley.* Amending sections of an act providing for sanitary inspection of slaughterhouses, providing conditions under which slaughterhouses shall be examined relative to health conditions and the inspection department and providing for the duties of employees thereof.

S. B. No. 391—*Canepa.* An act to amend Sections 2283 and 2290, Political Code, relating to state aid for orphans, half-orphans, and abandoned children of those whose fathers are incapacitated for gainful work by permanent physical disability or suffering from tuberculosis in such a stage that they cannot pursue a gainful occupation.

S. B. No. 395—*Fellom.* Providing that any hospital along the highway which refuses to give aid or treatment to any person who is injured upon the public highway, shall be guilty of a misdemeanor.

S. B. No. 404—*Swing.* Providing that sheriffs of counties must employ persons capable of handling mental or insane persons.

S. B. No. 405—*Slater.* Amending sections of Political Code relating to department of institutions, prescribing methods of treatment of mentally sick or incompetent persons, relative to the different departments of the institutions.

S. B. No. 410—*Crowley.* An act creating the office of chief of narcotic law enforcement and removing the same from the control of the State Board of Pharmacy, establishing his duties and providing for his payment of salaries, etc.

S. B. No. 436—*Pedrotti.* Amending Section 2171 of the Political Code relating to care, custody, commitment and maintenance of insane and other persons who are incompetent.

S. B. No. 437—*Pedrotti.* Adding new section of Political Code relating to transfer of persons from place of confinement to state institutions, and funds therefor.

S. B. No. 478—*Handy.* New act to prevent the introduction of rabies into portions of the state not infected; to control the spread of such disease after introduction and authorizing the State Department of Agriculture to make rules and regulations therefor, and boards of health to carry out the terms of the act.

S. B. No. 481—*Boggs.* New general law to be known as the "Bovine Tuberculosis Law" and repealing the act of 1927 thereto and prescribing certain terms and methods of procedure relative to the treatment of cattle, etc.

S. B. No. 487—*Jones.* Act to provide for the establishment and maintenance of convalescent tuberculosis departments or colonies and preventoriums, defining the powers and duties of the department of health relative thereto; providing that every city, county, city and county, or group of counties which establishes and maintains a tuberculosis preventorium shall receive from the state the sum of seven dollars per week for each person who is suffering from tuberculosis, providing for hospitals who shall receive state aid for persons whom they may have under their care for tuberculosis, there shall be appropriated the sum of $150,000.

S. B. No. 497—*Carter.* Amends the State Pharmacy Act relative to compounding of prescriptions for medical practitioners, etc.

S. B. No. 498—*Carter.* Amends Section 5a of the State Poison Act relative to the sale of certain poisons.

S. B. No. 517—*Rochester.* An act preventing the manufacture, sale and transportation and possession of intoxicating beverages. Practically a new Volstead Act for the State of California which provides therein that physicians and surgeons and others shall obtain necessary blanks from the district attorney for their prescriptions, and provides that they shall obtain said books and what the books shall contain, etc. In other words, this act makes a double work upon physicians and surgeons, hospitals, and others who are legally entitled to prescribe liquors or intoxicating beverages.

S. B. No. 523—*Crowley.* Amending Section 13 of the State Medical Practice Act relating to reciprocity certificates. Medical board bill.

S. B. 546—*Inman.* Amending Section 5a of the State Poison Act relative to sale of poison by pharmacists, etc.

S. B. No. 550—*Inman.* Amending the sections of the Dental Act relative to the practice of dentistry, etc.

S. B. No. 566—*Lyon.* Relating to the Workmen's Compensation Act and defining the percentage of permanent disability, etc.

S. B. No. 616—Crowley. New general law known as "Pure Milk Law of California" to define market milk, all of which shall be under the department of health, repealing the pure milk law of 1927.

S. B. No. 618—*Rochester.* Adding a new section to the poison act known as 8h relative to the selling or furnishing or giving away of any barbatol diethobarbituric acid or veronal.

S. B. No. 620—*Crowley.* An act to revise the act defining mattresses; prohibiting the use of unsanitary and unhealthy materials therein and repealing legislation inconsistent with act which was approved June 7, 1915.

S. B. No. 652—*Jones.* Appropriating money for the support of the state department of health for the conduct of research and investigation of sewage and industrial wastes to determine upon proper methods for treatment and disposal thereof and appropriating the sum of $65,000.

II. Proposed Laws—Introduced by California Assemblymen

A. B. No. 16—*West.* An act creating bureau of medical and hospital service in the office of the insur-

ance commissioner; defining the duties of same, and providing that said person so appointed shall investigate medical and hospital services; those dealing in insurance.

A. B. No. 41—*Jespersen.* Act repeals Section 9 of an act to appropriate money for the support of half-orphans, etc. Skeleton bill.

A. B. No. 113—*Miller.* Act to amend Section 1 of an act to authorize the transportation of certain dependent children to homes outside of the state. Deals with the department of social welfare; said department authorized to transport such children, or children whose fathers have become incapacitated from gainful work by permanent physical disability or who are suffering from tuberculosis in such a stage that they cannot pursue a gainful occupation; provides that the county pay one-half the total expense.

A. B. No. 117—*Crowley.* An act to provide aid for needy blind persons, creating a state blind benefit; providing powers and duties, etc., all under the department of social welfare and director of institutions; receiving a salary of $3000. Provides that said blind commissioner employ ten or more persons to be known as state field workers for the adult blind at a salary of $1500 per annum to be paid out of the said state blind benefit fund; provides Board of Supervisors may levy taxation for same; procedure somewhat the same as crippled children's bill.

A. B. No. 124—*Miller.* Act to establish an institution for the confinement, care and reformation of women misdemeanants; providing for the examination of said commitments, mentally and physically, etc.

A. B. No. 144—*Lyon.* Amends Section 1373, Penal Code, relating to expenses of insane persons.

A. B. No. 156—*Williamson.* Act amending the Workmen's Compensation Insurance Act of 1917, relating to disability indemnity and death benefits. Changes the scale as heretofore applied.

A. B. No. 166—*Wright.* Act for the protection, welfare and assistance of aged persons; somewhat similar to the Senate Bill covering like subject. This bill adds additional duties upon Boards of Supervisors of local counties; provides for taxes, etc.

A. B. No. 167—*Sewell.* An act to provide an institution for the confinement, care, training and rehabilitation of defective delinquents; defines defective delinquents, etc.

A. B. No. 171—*Woolwine.* An act to amend Section 6 of an act entitled "An act to prevent the unauthorized use and disposition of, and traffic in human bodies. This bill known as the "Anatomical Act." The present bill provides that bodies of soldiers, sailors, or marines shall be exempt.

A. B. No. 177—*Coombs.* An act to amend Section 2979b of Political Code relating to the care, treatment, transportation and rehabilitation of physically defective and handicapped persons. This bill is in conjunction with other bills relative to crippled children.

A. B. No. 179—*Coombs.* An act to amend act of 1915 and amendments of 1917 relative to the formation, government, operation, and dissolution of mosquito abatement districts.

A. B. No. 226—*Fisher.* An act to amend Section 4 of the act regulating the preparation, manufacture, care and marketing of milk products, to prevent fraud, etc. Deals mostly with evaporated skim milk in containers, condensed milk.

A. B. No. 227—*Patterson.* An act to amend Section 7 of an act to provide for the formation, government, operation and dissolution of mosquito abatement districts, fixing the method by which districts shall vote relative to taxation covering the same.

A. B. No. 249—*Bishop and Keaton.* An act to amend Section 2979b and 2979c of the Political Code relating to physically defective and handicapped persons; attempt being made in this bill to make the original crippled children's bill more effective and workable.

A. B. No. 309—*Coombs.* An act to provide for county, and city and county boards of mental health; providing to establish on said boards those who are eligible. Those eligible in the act or proposed bill must be graduates of an accredited medical college holding license to practice surgery and medicine in California, and must have practiced three years before the appointment, etc.; defining their powers and duties.

A. B. No. 346—*Scofield.* An act to add a new section to the Civil Code, to be numbered 69b, providing that all those seeking to obtain a marriage license must file health certificate before such license may be issued; providing certificate from a physician duly authorized to practice medicine. Such certificate must show that persons so applying for marriage licenses show no evidence of venereal disease.

A. B. No. 372—*Jespersen.* An act to amend Section 2337 of the Political Code relating to licensing of places for the reception or care of children; providing that department of public health must maintain certain inspection services relative to said institutions, etc.

A. B. No. 394—*Mixter.* Act to amend Section 5a of an act to regulate sale and use of poisons in the State of California. Pharmacy bill.

A. B. No. 405—*Mixter.* Act to amend Pharmacy Act in the State of California relating to pharmacists; somewhat similar to Senate bill relative to removal of drug stores from one place to another and provides for their registration.

A. B. No. 413—*Morgan and Cloudman.* Act providing for investigation in the methods of sewage and waste, disposal and treatment, appropriating the sum of $65,000. Similar to Senate bill for like amount and like reasons.

A. B. No. 414—*Morgan.* Provides for maintenance and support of needy blind persons not inmates of any institution supported in whole or in part by the state or by any of its political subdivisions. The department of social welfare is hereby authorized and directed to enforce the provisions of this act; also authorized in behalf of the state at any time to inquire in such manner as it may deem fit, into the management of any county of aid to needy blind persons.

A. B. No. 488—*Patterson.* An act amending the Medical Practice Act of the State of California by adding a new section thereto known as 6a, providing the Board of Medical Examiners shall establish a medical library in the State Capitol at Sacramento, appropriating all monies over the sum of $100,000 now in the contingent fund.

A. B. No. 490—*Byrne.* An act to amend Section 2196 relating to care and treatment of mental defectives in sanitariums; providing for licensing of institutions and sanitariums and rules and regulations covering the same.

A. B. No. 523—*Byrne.* An act to provide for the establishment of a state hospital for the insane; providing for a commission composed of governor, lieutenant-governor, state engineer, director of institutions, and a member of the Psychopathic Association of California.

A. B. No. 528—*Fisher.* An act to amend Section 3 of an act to define imitation milk and regulate the business thereof. Deals mostly with condensed or evaporated milk; cans and containers, etc.

A. B. No. 532—*Fisher.* An act to amend Section 1 of an act to regulate the conduct of canneries and to create a division of cannery inspection to carry on such regulation; defines duties of the California State Board of Health relative to the cannery industry.

A. B. No. 536—*Fry.* An act to secure the safety of the public at public beaches and bathing places; deals mostly with safety devices.

A. B. No. 557—*Bernard.* An act to be known as "The Bovine Tuberculosis Law," repealing law of 1927; somewhat similar to Senate bill relative to the same matter.

A. B. No. 561—*Jost.* An act amending Section 5a of the Poison Act of the State of California. Deals with certain poisons, etc. Pharmacy bill.

A. B. No. 562—*Jost.* Amending Sections 12 and 16 of an act to regulate the practice of pharmacy in the State of California. Somewhat similar to Senate bill of Crowley covering the same thing. More stringent regulations relative to filling of prescriptions.

A. B. No. 568—*Coombs.* An act to amend an act relative to formation, government, operation and dissolution of mosquito abatement districts. Somewhat

similar to Senate and other Assembly bills relative to the same.

A. B. No. 628—*Nielsen.* Skeleton bill, amending Sections 8, 9, 10, 11, 12½, and 13 of the Medical Practice Act of the State of California. Osteopathic contents unknown.

A. B. No. 666—*Patterson.* An act to regulate the examination of applicants for license in the "basic sciences," providing for the establishment of a state board of examiners in the "basic sciences." Defining the duties of said board; defining "basic science," etc.

A. B. No. 671—*Woolwine.* An act to amend an act entitled "An act to promote the drainage of wet, swamp, and overflowed lands, etc."

A. B. No. 676—*Woolwine.* An act regulating the packing for shipment of cans to be used for food products.

A. B. No. 688—*Cloudman.* An act to amend the State Medical Practice Act by adding new section thereto known as 11a relating to the recognizing of a certificate of examination issued by the National Board of Medical Examiners.

A. B. No. 689—*Baum.* An act amending Sections 4 and 11 of an act relative to the establishment of an institution for the confinement, cure, care, and rehabilitation of drug addicts.

A. B. No. 690—*Cloudman.* An act to amend Section 6 of an act relative to the regulation of the business of producing and selling imitation milk.

A. B. No. 691—*Baum.* An act to amend Section 2192 of the Political Code, providing that any parent, guardian, or other person charged with the support of an imbecile or feeble-minded person, or any idiot, or epileptic who is not insane, desires him to be admitted into the home for feeble-minded, he may petition the superior court.

A. B. No. 692—*Baum.* An act to amend Sections 20 and 31 of an act to be known as the "Pacific Colony Act" to establish an institution for the care, confinement and instruction of the feeble-minded, etc.

A. B. No. 719—*Scofield.* An act to amend Chapter 6 of Article 14 of Part 4, Division 3, of the Civil Code adding new section thereto, providing that physicians, nurses, hospitals, etc., shall have a lien for their services and provides method of enforcing said lien.

A. B. No. 740—*Feigenbaum.* An act amending Section 359b of the Political Code relative to the governor's council, adding to said council a director of vocational standards.

A. B. No. 767—*Bishop.* An act to revise an act relative to the manufacture, repair and sale of upholstered furniture and providing what may be used relative to the same; inspection, etc.

LIST OF CALIFORNIA STATE SENATORS AND ASSEMBLYMEN

For the convenience of members of the California Medical Association who do not have at hand the names of state senators or assemblymen from their districts, the following lists are here printed. Letters addressed to Senators, care of State Senate Chamber, Sacramento, or to Assemblymen, care of State Assembly Chamber, will reach legislators so addressed:

Names of Senators, with Counties

Name	*County*
Allen, James M.	Siskiyou
Baker, C. C.	Monterey
Boggs, Frank S.	San Joaquin
Breed, Arthur H.	Alameda
Canepa, Victor J.	San Francisco
Carter, Henry E.	Los Angeles
Cassidy, Bert Alford	Placer
Christian, E. H.	Alameda
Cleveland, George C.	San Mateo
Cobb, Charles H.	Fresno
Crowley, John Joseph	San Francisco
Duval, Walter H.	Santa Barbara
Edwards, Nelson T.	Riverside
Evans, H. J.	Los Angeles
Fellom, Roy	San Francisco
Garrison, J. C.	Stanislaus
Gray, P. J.	San Francisco
Handy, Fred C.	Mendocino
Hurley, Edgar S.	Alameda
Inman, J. M.	Sacramento
Jones, H. C.	Santa Clara
Jones, Ray	Yuba
Lyon, Charles W.	Los Angeles
Maloney, Thomas A.	San Francisco
McCormack, Thomas	Solano
McKinley, J. W.	Los Angeles
Merriam, Frank F.	Los Angeles
Mueller, Edwin A.	San Diego
Murphy, Daniel C.	San Francisco
Nelson, H. C.	Humboldt
Pedrotti, J. L.	Los Angeles
Rochester, George W.	Los Angeles
Sharkey, Will R.	Contra Costa
Slater, Herbert W.	Sonoma
Swing, Ralph E.	San Bernardino
Tubbs, Tallant	San Francisco
Wagy, J. I.	Kern
Weller, Frank C.	Los Angeles
West, T. C.	Alameda
Young, Sanborn	Santa Clara

Names of Assemblymen, with Home Addresses

Name	*Home Address*
Adams, Elbert G.	Livingston
Anderson, Roscoe J.	Redding
Arnold, Emory J.	Los Angeles
Badham, Willard E.	Los Angeles
Baum, Willis M.	Los Angeles
Bernard, Van	Butte City
Bishop, Roy	Alameda
Bliss, George R.	Carpinteria
Brock, Archibald E.	Redlands
Byrne, William M.	Los Angeles
Cloudman, Harold C.	Berkeley
Clowdsley, F. C.	Stockton
Collier, Frank B.	Modesto
Coombs, Frank L.	Napa
Craig, Edward	Brea
Crawford, James C.	Burbank
Crittenden, Bradford S.	Tracy
Cronin, Melvin J.	San Francisco
Crowley, Ernest C.	Suisun
Deuel, Charles H.	Chico
DeYoe, A. C.	Carmel
Dillinger, H. E.	Placerville
Easley, Robert P.	Antioch
Eddy, Crowell D.	National City
Emmett, Dan W.	Santa Paula
Feeley, Walter W.	Oakland
Feigenbaum, B. J.	San Francisco
Fisher, Robert F.	Hydesville
Flynn, James C.	San Francisco
Fry, Robert B.	San Francisco
Gilmore, Joseph P.	San Francisco
Harper, William E.	San Diego
Hawes, Fred C.	San Francisco
Heisinger, S. L.	Selma
Hoffman, William W.	Oakland
Hornblower, William B.	San Francisco
Ingels, R. R.	Ukiah
Jespersen, Chris N.	Paso Robles
Jewett, Augustus F.	Hanford
Jones, Isaac	Ontario
Jost, William P.	Hayward
Keaton, Morgan	Long Beach
Kline, Chester N.	San Jacinto
Levey, Edgar C.	San Francisco
Leymel, Z. S.	Fresno
Little, Walter J.	Santa Monica
Luttrell, Frank W.	Santa Rosa
Lyons, Harry	Los Angeles
McDonough, M. J.	Oakland
McGinley, Frank	Wilmington
McGuinness, Henry	Dunsmuir
Meeker, M. S.	Kerman
Miller, Eleanor	Pasadena
Miller, James A.	San Francisco

Mixter, Frank W.	Exeter
Morgan, Albert H., Jr.	Berkeley
Morrison, Harry F.	San Francisco
Nielsen, Roy J.	Sacramento
Noyes, Fred B.	Yuba City
Oliva, Charles A.	San Francisco
Parkman, Harry L.	San Mateo
Patterson, Robert Lincoln	Taft
Quigley, James L.	San Francisco
Reindollar, Charles F.	San Rafael
Roberts, Frederick M.	Los Angeles
Roland, Eugene W.	Oakland
Scofield, Jerome V.	Huntington Park
Scudder, Hubert B.	Sebastopol
Seawell, Jerrold L.	Roseville
Sewell, Harry F.	Whittier
Snyder, Bert B.	Santa Cruz
Spalding, C. C.	Sunnyvale
Stockwell, James E.	Los Angeles
West, Percy G.	Sacramento
Williams, Dan E.	Jacksonville
Williamson, Ray	San Francisco
Witter, Myron D.	Brawley
Woolwine, Clare	Los Angeles
Wright, T. M.	San Jose
Young, Forrest R.	Quincy

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume II, No. 3, March, 1904

From some editorial notes:

Thanks for Resolutions.—Since the February journal was issued, at least two county medical societies have met and have passed resolutions relative to the question of proper and decent advertising in medical journals. These are Alameda and San Bernardino county societies, and the journal fully appreciates the action taken by them. Every county society in the state should come out and declare itself on this question of right or wrong. Every doctor in the state should know exactly what the issue is, and should come to a decision in regard to his personal attitude in the matter. The editor is about tired of being called a "crank" because he keeps hammering away on this same question, month after month. If he is a "crank" for believing that the nostrum evil and the quack medicine business represent the most important—and, incidentally, the nastiest—issue before the medical profession of the day, he wants to know right away so that the editorial burden may depart from him quickly, and he may once more lead a quiet and a peaceful life. It is not fair to pass the responsibility for the whole thing up to the editor, and then indulge in the free and independent American's privilege—to kick. If the seductive dollar has more attractions than a right principle, just say so. . . .

Eyes, Ears, and Noses.—In this discussion of the examination of school children for defects of sight, hearing, and breathing, let us get down to the essential fact. Apparently all agree that children should be examined to determine whether they have any condition of the eyes, ear, or nose which will interfere with their growth, development, and study. . . .

About Papers.—Please read carefully the notice from the Committee on Program about the papers to be read at the meeting next month. It is highly desirable—in fact it is mandatory. under our present Constitution and By-Laws—that all papers be sent to the committee in ample time. Every county society in the state should be represented on the program by at least one paper. . . .

The United Railroads of San Francisco.—In the New York and Philadelphia medical journal of February 6, 1904, is a news item which says that the New York Board of Health has undertaken to make a bacterioscopic study of paper money to discover if it probably may or may not be a medium for the dissemination of infectious diseases. . . . In San Francisco, where paper money does not commonly circulate, the question is not such an important one. . . .

. . . *Colorado State Society Journal.*—But why all this glee over the starting of a state society journal? Because the state society journal will reach and influence more men in its territory than all the other journals published in the world. If the organization of the state society is properly pushed, it ought to represent two-thirds of the eligible physicians in the state, at the very least. The state journal is the property of every member of the organization; it is the official record of his county and his state society meetings and transactions. . . .

From an article on "Undigested Thoughts and Comments" by James P. Booth, M. D., Los Angeles:

. . . The control of prostitution is agitating the morally inclined, and particularly the religionists, in many of our cities and towns. In Los Angeles the latter have made a most vigorous crusade, marching in bodies to the abodes of the demimonde, and with promises of homes, and words and sweet songs of consolation and advice, have endeavored to persuade the fallen ones to forsake their evil ways and embrace a life of religious purity. The appeal was ineffectual. . . .

From reports of county medical societies:

Alameda County.—The Alameda County Medical Association met Tuesday evening, February 9, Doctor Hamlin presiding. Dr. J. F. Rinehart read the first paper, in which he related the following very interesting and remarkable history of a case of hydatid cyst that had come under his notice. . . .

Humboldt County.—The regular meeting of the Humboldt County Medical Society was held in Eureka, Tuesday evening, February 9, Doctor Felt presiding. The Dental Society of Humboldt County requested that the medical society appoint a committee to meet with a similar committee from the dental society for the purpose of considering matters pertaining to the welfare of both professions in the county. . . .

Sacramento County.—The Sacramento Society for Medical Improvement met in regular session at the office of Doctor McKee on January 26. . . . A communication was received from Doctor Moffitt of San Francisco accepting the invitation of the Sacramento society to read a paper at the annual meeting, and announcing his subject to be "Some Unusual Forms of Exophthalmic Goiter—The Recognition and Treatment." . . . A communication was received from Doctor Kenyon asking aid for the Board of Examiners in defense of suits. A motion was made and carried that the Sacramento society give $50. . . .

San Francisco County.—(Special meeting, February 2, 1904.) Doctor Simon Baruch of New York (by special invitation) read a paper, "The Rôle of Hydrotherapy in Infectious Fevers." . . . Dr. Philip Mills Jones, editor of the state journal, announced that the publication office of the state society was about to be changed from its present location, and suggested that an arrangement might be entered into by which the county library could have the benefit of the files of the various medical publications coming to the office, in case suitable quarters could be offered for the use of the publication office. . . . Scientific Program. Dr. A. Barkan read a paper on "Professor Killian's Radical Operation for Chronic Empyema of Both Frontal Sinuses," with presentation of a case. The subject brought out discussion participated in by Doctors Pischel, Arnold, Cohn, Nagel, Grosse, and Shiels. . . .

Los Angeles Medical Journal.—No. 1 of Vol. 1 has been received. This new monthly is published by a number of physicians of the southern city, under the editorial management of Dr. E. S. Pillsbury, and is announced to be the official organ of the Los Angeles Academy of Medicine.

* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

CALIFORNIA
AND
WESTERN MEDICINE

VOLUME XXX APRIL, 1929 No. 4

MALARIA—A PRACTICAL REVIEW*

By ALFRED C. REED, M. D.
San Francisco

DISCUSSION *by Walter V. Brem, M. D., Los Angeles; Harry A. Wyckoff, M. D., San Francisco.*

PROBABLY no disease in the world today equals malaria in its menace to human life and progress in general. Its exceedingly wide distribution, its tremendous production of invalidism, its antecedent relation to secondary diseases, in addition to its direct mortality, make it perhaps the major disease enemy of man. Moreover, its domain is primarily in those parts of the earth where the white man's future is concerned, because in the tropical areas lies the future food store of his race and the probable site of his greatest commercial activity. There the development of power will certainly lead to a new type of industrial life, with the consequent needs of a white population living under tropical conditions, and also the need of improving the efficiency and standards of native races. Malaria is the greatest single obstacle. The same is true in the history of races, as witness Greece and Rome and many another ancient régime.

MALARIA IN CALIFORNIA

But we are not outside the danger zone in California. Our interest in combating this disease is not solely academic. The Pacific countries which we must serve medically, and from whom patients are coming to us in increasing numbers, have in California a fellow sufferer from this greatest of tropical plagues. Its decrease in the San Joaquin Valley has followed good sanitation and scientific control methods. But it is still present there. In the northern valleys of the Sacramento it is still prevalent and a serious personal and public health problem. This is especially true in the deep mountain valleys. Thus from several points of view the physician in California is intimately concerned with malaria, first and chiefly of course, with its eradication in our own state, and then vitally also, with its control in those countries to which we are being constantly tied closer and with which our future is so closely associated, in the great Pacific Basin.

TYPES OF MALARIA

For the clinician, malaria exists in three forms. It is caused by a protozoan parasite of the red blood cells which is transmitted from man to man solely by certain species of anopheline mosquitoes. In the mosquito it undergoes a definite cycle of sexual development. In man it undergoes an asexual cycle with the production of sexual forms which are not infective for man and which only develop when ingested by the proper mosquito. Thus we have two general points of approach to the problem of control. We can either destroy the mosquito and thus effectually limit the spread of malaria, or we can destroy the sexual forms of the parasite and thus prevent the infection of mosquitoes. We will consider these two later on.

Three forms of parasite are concerned. Their differentiation is important from the standpoint of treatment, prognosis, and prevention of spread. The disease produced by the ordinary benign tertian, or better, tertian parasite, with its characteristic chill, hot stage, and sweating, may at first show an irregular febrile course for a few days only. Then it assumes the typical third day paroxysm form, which is clean-cut, sharply limited and perhaps more apt to appear in the mornings. A double tertian infection is not uncommon, but each generation is inclined to maintain a separate fever height.

Quartan malaria is much the least common of the three, and its distribution shows a peculiar and unexplained patchy quality. It occurs often in sharply limited areas and often shows a seasonal incidence which also is unexplained. In tropical areas, where it is found, the poorer class of the population is more susceptible. Like benign tertian, if there is a double infection, the generations are separated in their maturation by exactly twenty-four hours. It is difficult of cure and prone to relapses even after several years. The toxin seems to damage the nervous system especially, and nervous effects are always more severe in patients having already some form of nervous disturbance. The parasites are usually few in number in the blood, but they give rise to a severe symptomatology.

Subtertian malaria was sometimes wrongly called estivo-autumnal fever. The best of the many terms used is simply subtertian. It is the serious malaria of the tropics and much inclined to show pernicious or malignant features. The fever is remittent, and while there is no such characteristic paroxysmal periodicity as in the benign malarias, still some periodicity in temperature or some other symptom can often be traced. Bilious vomiting and the so-called dumb ague are common. It particularly affects the mental

* From Pacific Institute of Tropical Medicine, in the Hooper Foundation of the University of California.

capacity, and it is distinctly unsafe to try to "fight the fever" with this infection. The patient does much better to give up at once, go to bed and submit himself to careful treatment without any delay whatever. The parasites do not develop in clear-cut generations as in the other forms, but there is a constant maturation of parasites resulting in a more or less constant toxemia. For this reason parasites at different stages of development are seen in the blood at one time.

In subtertian malaria, pernicious symptoms may develop at any time and with no warning. The appearance of developing forms of the parasite in the peripheral blood is a danger signal of importance, meaning that the capillaries of certain viscera are overcrowded and cannot hold all the growing forms which thus overflow into the circulating blood. Under such conditions the patient must be saturated with quinin in some form within six hours to prevent death.

It is not generally realized that subtertian malaria can simulate almost every other known disease, and can produce symptoms localized in any part of the body whatsoever. The reason for this is easy to understand when we recall one peculiarity of the parasite. The youngest forms, inoculated by the mosquito, grow for a short time only in the circulating blood. As soon as they have passed the small ring stage of growth they become adhesive and adhere to the capillary lining in the deep viscera, especially the liver and spleen. Less commonly they concentrate in some other organ as the brain or lung or intestine. The symptomatology, therefore, is as varied as the points of localization of the parasites in the organs of the body. This concentration of sticky parasites in the visceral capillaries does not cause thrombosis but direct blocking of the blood channels and probably precipitates a major toxic action in the adjacent structures, when the full-grown organisms rupture and release their specific toxin.

The cerebral forms are especially dangerous, and in children are apt to be associated with convulsions which are extremely dangerous. In a malarious district, blood examination for malaria is a safe procedure when patients are seen suffering from convulsions with fever, because, if due to untreated malaria, death is common within eighteen hours. In adults, confusion is easy with acute alcoholism. Again in a tropical or malarial area, blood examination and temperature record are safe procedures in cases suspected of alcoholism. In fact many of these will have taken alcohol to some degree, and the odor of it on the breath may be misleading. Coma is another common and dangerous manifestation. A patient rarely recovers after going into coma twice. Malaria should be kept in mind in connection with uremia, diabetes, alcohol, and opiates in the differential diagnosis of coma. Libraries are filled with descriptions of the various forms and features of malaria. It is enough in this review to call attention to the literally protean manifestations of subtertian malaria and to urge blood examination and conscious exclusion of malaria in all tropical cases with fever and in all doubtful cases where there is a possibility of malaria being present.

CHRONIC MALARIA AND MALARIAL CACHEXIA

Chronic malaria and malarial cachexia are serious after-effects usually following improper treatment. Blackwater fever is somewhat endemic in distribution and, if encountered, positively should not be treated with quinin. It is known to be associated with subtertian malaria, but quinin is apt seriously to increase the hemoglobinuria. About half the cases which recover are cured of their malaria by the attack of blackwater. Therefore quinin had better be postponed for later use if malarial organisms are found in the blood after the acute blackwater fever is past. Paroxysmal hemoglobinuria can be excluded by the autolytic blood test, and a history of onset from chilling of some part of the body usually in repeated attacks which are seldom clinically serious.

Aside from its actual death rate, malaria predisposes to all other contiguous diseases by lowering resistance, and produces a huge amount of direct invalidism extending from the acute attack through a more or less prolonged convalescence. As has been stated, it is undoubtedly the greatest single disease problem in the world today. Its recognition and efficient treatment by the individual physician are matters, therefore, of the utmost importance.

DIAGNOSIS

Diagnosis rests on the following points:

1. *Demonstration of the Parasite.*—For practical purposes one must remember that the following forms of parasite may be seen in ordinary blood films that have been stained with Leishman or Romanowsky stain: the young ring forms; the growing ameboid or trophozoïte form; the matured stage ready to rupture the blood cell, called the merocyte; and finally the sexual forms or gametocytes. For the exact recognition of the malaria, these must be recognized and distinguished. A single parasite may not tell the story, but the slide should be searched and careful note made of the various forms seen. The subtertian, *Plasmodium falciparum,* as has been stated, shows only the young rings and the sexual forms or gametocytes. The rings are small, clear-cut, easily seen, often several in one red cell, and often in accolé or appliqué forms as if clinging to the outside and projecting beyond the red cell. The presence in the same slide of these rings, associated with the large crescents or sexual forms, is diagnostic. In benign tertian, *Plasmodium vivax,* the invaded red cells are always definitely enlarged and the rings are usually single in each cell. The cell is paler and soon shows a fine stippling with pink dots called Schüffner's dots. And all parasites are at the same stage of development. In quartan, *Plasmodium malariae,* the rings are the largest of the three, up to a third the diameter of the red cell, which is not changed in size, and the rings in a few hours become coarse with very

coarse granules. Only one stage of the parasite is seen in one slide.

In the growing or trophozoïte stage, it is easy to remember that the *Plasmodium falciparum* of subtertian never appears under ordinary circumstances. We have then to differentiate only the two benign forms. Tertian trophozoïtes are always in enlarged pale red cells with Schüffner's dots present, while *Plasmodium* malariae of quartan shows no enlargement of red cells, no dots and the abundant presence of the so-called band forms which are easily recognized and are diagnostic. Again in the mature stage or merocyte, subtertian forms do not appear in the peripheral blood. Again benign tertian parasites are in enlarged pale red cells with abundant Schüffner's dots, with the chromatin divided into some sixteen masses which are not in a regular arrangement, and pigment is collected in the center. Quartan merocytes have no dots, are in unenlarged red cells and have a more typical rosette appearance with eight masses of chromatin. On rupture of the red cell these masses of chromatin, called merozoites, are the bodies that invade new red cells and repeat this asexual cycle of schizogony. After a time it is found that all the parasites are not of the merocyte or trophozoïte form, but some appear as the sexual or gametocyte forms. These are hardly distinguishable for the ordinary observer in benign tertian and quartan malaria. They are larger bodies which can be best recognized by reference to textbook illustrations. Their association with the characteristic earlier forms of the parasite will decide whether they are *P. vivax* of benign tertian, or *P. malariae* of quartan. The gametocytes of *P. falciparum* or subtertian malaria appear again in the peripheral blood, where they are found in association with the young ring forms of the same parasite.

In case ring forms of doubtful nature are found alone, reëxamination after a few hours will show whether they have all advanced to a further stage of development, as in benign tertian and quartan, or whether they have remained the same, as in subtertian, in which case crescents will usually be found by added search.

2. *Clinical Phenomena.*—In the second place, diagnosis rests on certain clinical phenomena of which fever with periodicity takes first place. Enlarged spleen, and therapeutic response to quinin are also important.

3. *Blood Examination.*—In the third place, blood examination may show an increased percentage of large mononuclears, together with a moderate leukopenia, and melaniferous leukocytes.

COMMENTS ON PATHOLOGY

Two points in the pathology of malaria are important in this review. First, the growing forms of the parasites themselves are agglomerated densely in the subtertian form in the capillaries of various viscera or in any part of the body. Second, pigment is produced by all the malarial parasites and carried by phagocytes to various tissues. The pigment is derived from the hemoglobin of the red cells by the digesting action of the parasite and collects in the parasite because it has no means of excretion. When the containing red cell ruptures, the pigment is dropped free and is then taken up by phagocytes of the white cells, and vascular endothelium, and especially by the large mononuclears. Presence, therefore, of pigment in these cells, in the absence of finding parasites in the red cells, is important and indicates active malaria. It is deposited chiefly in the liver and spleen. In the liver it appears as black irregular masses of melanin, with iron in fast combination. In the spleen it is seen chiefly in the large macrophages of the pulp and in the endothelium of the vessels. The slaty dark color of the spleen does not clear up on exposure to oxygen as in the case of ordinary congestion of the organ. The spleen seems to be the last resort or habitat of the pigment and releases the pigment with difficulty. A third point might be added under functional pathology, calling attention to the intense toxemia of malaria, the toxin being freed in the circulation on the rupture of the parasitized red cells.

TREATMENT

Treatment is, after all, rather simple and can be discussed briefly under definite headings:

1. *Drug Treatment.*—Drug treatment is divided into three portions. The first two are alternative. The third is secondary to both.

(a) *Quinin.*—As a general rule for an average adult give 2.0 grams (30 grains) daily for seven days, in three doses each day, in fresh gelatin capsule or simple tablet triturate, uncovered with sugar or other coating. Use preferably quinin hydrochlorid, the most soluble salt. If expense is a serious item use bisulphate or even the sulphate. Then reduce the dose daily to a total of 1.3 grams (20 grains) given in two equal doses as before, and continued for seven days. Then reduce the total daily dose to 1.0 gram (15 grains) in three equal daily doses as before for seven to fourteen days. Then reduce the daily total dose to 0.6 gram (10 grains) in two equal daily doses, and continue to a total of twelve weeks from the time treatment began. This persistence is of the utmost importance, and prevention of relapses will rest largely on this point. Certain points are to be specially noted. Swallowing the drug does not connote absorption. Only absorbed drug acts. Therefore be sure that the patient is really absorbing the full quota daily. In case of vomiting of any intractable nature, coma or any other complication interfering with mouth administration, give the bihydrochlorid intravenously. Never give quinin under the skin or into the muscle. The dose by vein should be 0.3 to 0.5 grams, dissolved in sterile distilled water or saline in a 10 cc. syringe. It must be injected slowly and with particular care to avoid extravasation into the tissue outside the vessel. Three doses can be given two or three hours apart.

(b) *Plasmochin.*—After enormously extended experiments the Bayer Company elaborated a product called plasmochin which is ethyl-aminoquinolin hydrochlorid. The toxic dose of the

product was too near the therapeutic dose to give a safe margin in treatment. Symptoms were apt to result from the drug, associated especially with cyanosis due to formation of methemoglobin. Mixture of a small amount of quinin has been found to obviate this toxicity. Plasmochin compound is now available consisting in each tablet of 0.005 plasmochin and 0.0625 quinin sulphate. Twelve tablets are given each day for five days, then omit treatment for five days. Then give again twelve tablets each day for seven days, and again omit for five days. This procedure is followed for a total elapsed time of ten and a half weeks. The drug is well tolerated by children in a proportional dosage. It is particularly effective against gametocytes, just where quinin is least effective. In heavy subtertian infections it is well to add ten grains daily of quinin to the above dosage, because the effectiveness is poorest against the growing or trophozoïte stages. In its destruction of the sexual forms, plasmochin is superior to quinin and thereby meets a need that quinin did not fill. In the compound form with quinin it is safe, and toxic symptoms are rare. It has little taste, which is another advantage. Patients who are very ill should always be kept in bed until the fever is controlled. This also makes the drug less toxic in its action and more effective. Glucose, an ounce or more daily, seems to help materially in controlling the malaria and promoting recovery. Unpleasant results may consist of indigestion, splenic or abdominal pain, but these are seldom severe. The swollen spleen is quickly reduced in size and during the reduction there may be pain. Plasmochin greatly decreases relapses and seems to be a definite advance in malaria therapy. As a prophylactic, two tablets per day of the plasmochin compound are sufficient.

(c) *Symptomatic Therapy.*—Following one or the other of the above courses of treatment the patient should be treated symptomatically and according to the blood count, with preparations of iron, arsenic, and strychnin. It is a matter of utmost importance that the specific treatment be be continued vigorously the full length of time indicated.

PROPHYLAXIS

The prevention of malaria has so far been attempted chiefly by the method of mosquito control. It has not been successful in eradicating malaria as a world problem in spite of the huge amounts of money and effort put into it. It is costly, slow, ineffective, and requires constant maintenance after being once established locally. A geographical survey of the tropical world shows at once its difficulties and the small impression on the total problem so far accomplished by it. Local, economic, religious, and social ideas are often insurmountable in the fight against mosquitoes. After many years malaria is still the major tropical disease and one of the greatest of the world's disease problems. Mosquito control should be followed, of course, as a local measure in the warfare, especially at the present, and until better weapons are available. Drainage, destruction of larvae, and mosquito-proofing are valuable procedures, where used. The larger problem of the eradication of malaria as a foe of humankind lies beyond the horizon, however, by this method.

If plasmochin compound or an analogous drug proves as effective on wholesale use as it does now on a smaller scale, we may well have in it the means for a really effective attack on the existence of malaria. Destroying the sexual forms, which alone are infective for the mosquito, is a simple and safe procedure on this basis. Eradicating the human reservoir of malaria offers a real hope of wiping out this ancient enemy of mankind. Measures looking in this direction require attention and study even while we secure what protection we can by present methods of mosquito destruction. Disturbing biological balances is always a dangerous procedure and usually brings unexpected and often serious results. Destruction of mosquitoes, if it could really be accomplished, would introduce this problem. Destruction of the malarial plasmodium, parasitic in man only, would disturb no biologic balance. To such an end we must look, and research toward its accomplishment is most timely.

380 Post Street.

DISCUSSION

Walter V. Brem, M. D. (523 West Sixth Street, Los Angeles).—The author has covered the subject so comprehensively that there is but little to add. I should like, however, to say a few words regarding the differential diagnosis between tertian and subtertian malaria by the blood examination. In ordinary subtertian infections, only young forms of the parasite, approximately all the same age, are seen, and these have not yet affected the size or appearance of the red corpuscles. They may be very ameboid and resemble closely young forms of the tertian parasite. But in a tertian infection, one group does not sporulate at the same moment or hour, but the sporulation of the group covers from eight to twelve hours and various sizes of the parasites can be seen corresponding to the different ages of the individuals. For instance, if the blood smear is made shortly after a chill, adult parasites, presegmentors and segmentors, and young ameboid forms, all belonging to the same group, can be found. If the smear is made, say twelve hours after the chill, parasites ranging in age from a few hours to one-third grown forms can be found, these also belonging to one group. Some of these will now have caused swelling and stippling of the red corpuscles. This spread of the sporulation of a tertian group is not pointed out by the textbooks, which lead one to believe that the sporulation of all the individuals of a group occurs at approximately the same time. The variation in the age of the individuals furnishes one of the most important points in the differential diagnosis.

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Harry A. Wyckoff, M. D. (Lane Hospital, San Francisco).—The reference to the extreme antiquity of the history of malaria is especially interesting.

It is said (Manson-Bahr) that the existence of periodic fevers was recognized by Hippocrates as early as the fifth century B. C., and that he classified them as quotidian, tertian, subtertian, and quartan.

It seems probable that at a remote period the Romans suspected the connection of an insect with the disease.

While, as stated by Doctor Reed, malaria remains a very important obstacle to the advance of the white man in certain regions of the earth, it seems certain that the prevalence of the disease even in these parts will eventually give way before intelligent sanitation, as it undoubtedly has in parts of the United States

during the past ten or twenty years. Indeed the successful work of General Gorgas in Havana and in Panama gives abundant promise for the white man's future in the tropics.

Bass[1] has estimated that even in the Southern States a 50 per cent decline in the prevalence of malaria has occurred within the last ten years, and points out that in New Orleans cases are now so few in some hospitals that the "greatest difficulty is experienced in finding enough material with which to teach medical students." He further states that "there has been no equal period during the history of the country in which malaria has declined anything like as rapidly as during the past ten years," and that "malaria is rapidly passing as an important disease of this country."

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Doctor Reed (closing).—In regard to the comment on the decreasing importance of malaria, the facts, in my opinion, do not at all bear out such a conclusion. California shares with the entire temperate and tropical world in the ravages of this greatest of tropical diseases. It is still a serious menace in California, and sanitation gives little evidence of ever being able to control the disease as a world problem. Its control would seem rather to lie in sanitary measures in districts such as California, where money and intelligent control are available, combined with vigorous treatment of all cases by individual physicians. Certainly malaria today is a primary world health problem, and its ultimate control is far from assured at present. It is still present in California in serious proportions, and the physician must recognize the seriousness and the difficulty of dealing with it.

ACHLORHYDRIA GASTRICA—A SIMPLE MANAGEMENT*

A PRELIMINARY REPORT ON FIFTY CASES

By W. D. Sansum, M. D.
AND
P. A. Gray, Jr., M. D.
Santa Barbara

Discussion *by John V. Barrow, M. D., Los Angeles; F. F. Gundrum, M. D., Sacramento; D. Schuyler Pulford, M. D., Woodland.*

DR. F. C., age forty-nine, came to the Cottage Hospital, Santa Barbara, on April 4, 1924, suffering from a mild diabetes complicated by achlorhydria. He apparently could not take more than twenty to thirty drops of dilute hydrochloric acid three times per day. When he took these small amounts of acid, although his diarrhea was checked, his abdominal distress was not controlled and he complained of an acid mouth, burning urine, and headaches. When too miserable from what he assumed to be a too acid general condition he stopped the hydrochloric acid, and, as a result, the diarrhea would return despite a low residue diet. When he became too distressed by the diarrhea he would resume the acid, beginning with five drops three times per day and increasing the dosage as much as possible. It occurred to us that the oxidizable citric acid might be used instead of the unoxidizable hydrochloric acid. We started by using citric acid either in capsules or liquid form or in combination with pepsin. Later we found that by giving grapefruit for breakfast, and either two ounces of lemon juice or six ounces of grapefruit juice with the other two meals, adequate amounts of acid could be given to control the achlorhydria with no untoward symptoms. Since first seeing this patient several Ewald test-meals have been made. The fractional test-meal made on March 8, 1928, showed no free hydrochloric acid in any of the specimens.

FREE HYDROCHLORIC ACID IN GASTRIC JUICE

The amount of free hydrochloric acid present in the gastric juice may vary widely and still be within the normal range. When titrated against standard alkali the range of free hydrochloric acid is placed between twenty and forty clinical units and that of total acid, between forty and sixty. Clinical units are measured directly as the number of cubic centimeters of N/10 NaOH necessary to neutralize ten cubic centimeters of filtered gastric content. The range of the hydrogen ion concentration has been found to be 1.05 to 7.0.

Cases where the free hydrochloric acid is below the usual normal standard of twenty may be divided into two groups: one, in which the amount of both the free and total acid is low—a true achlorhydria, which is probably also an achylia; another, in which the amount of free hydrochloric acid is low but the total is normal—a relative achlorhydria. Apperly[1] has suggested that in this latter condition there may be a normal secretion but a too rapid neutralization.

SUBJECT-MATTER OF THIS REPORT

The present paper is a preliminary report of fifty cases in which a subnormal amount of free hydrochloric acid has been found. Forty-nine of these cases have been considered to represent achlorhydria gastrica, and one a case of delayed secretion. These were all private patients, seen either at the office or in the hospital from 1924 to 1928. There were fourteen males and thirty-six females. The males ranged from 23 to 60 years of age, with an average age of 42.1 years; the females ranged from 18 to 76, with an average age of 46.8 years.

GASTRIC ANALYSES

Fifty-five analyses of the aspirated gastric contents were made on these fifty patients. The standard Ewald test-meal was used in forty-two cases and was followed by a single aspiration. Seven cases were studied by the fractional aspiration method and six were checked by the alcohol test-meal with fractional aspiration after a preliminary standard Ewald had revealed an achlorhydria. In every case where fractional aspiration was done, the results confirmed those obtained by the single aspiration. In view of the recent criticism of the single aspiration method, considerable hesitancy is felt about offering our results. In every case where coöperation can be obtained, fractional analysis is practiced. It is hoped that

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[1] Bass, C. C.: New Orleans Medical and Surgical Journal, Vol. 79, pp. 713-19, 1927.

* From the Potter Metabolic Clinic, the Santa Barbara Cottage Hospital, Santa Barbara.

* Read before the General Medicine Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

in the completed report we will have more of these to offer.

The free hydrochloric acid in eighty-one determinations averaged 2.3 clinical units, with a range of 0 to 19. The total hydrochloric acid averaged 18.4, with a range of 0 to 60. No blood or parasites were noted in any of the aspirations.

SYMPTOMS

Gastro-Intestinal.—The following table indicates the types of complaints referable to the gastro-intestinal tract noted in this series and their relative frequency:

Symptom	*Number of Cases*	*Per Cent*
Abdominal distress	25	50
Diarrhea	18	36
Abdominal distention	18	36
Constipation	10	20
Alternating attacks of diarrhea and constipation	8	16
Underweight	6	12
Borborygmus	5	10
Recent loss of weight	4	8
Weakness	3	6

It is readily seen that abdominal distress and distention and diarrhea far overshadow all the others. Statistically the symptom of alternating attacks of diarrhea and constipation ranks sixth on the list. Clinically this has come to be recognized as fairly indicative of achlorhydria. The patient usually seeks advice during the period of diarrhea. His constipated times usually have followed medication directed against the diarrhea and a low residue diet. For this reason it seems fair to include these cases with those complaining merely of diarrhea. The inclusion of this group brings the diarrhea cases up to twenty-six, or 52 per cent of the total number in the series.

Diarrhea.—In approximately sixty additional office patients who complained of periods of diarrhea alternating with periods of constipation, an achlorhydria was suspected. A test-meal was not given in these cases, either because of contraindications to passage of the stomach tube or lack of coöperation on the part of the patient. These patients were, however, placed on the citrus fruit management to be described below. Practically all cases later reported relief of their symptoms.

Constipation.—Ten cases, or 20 per cent of the group, complained of constipation. On careful questioning it was brought out that most of these patients had on their own initiative either taken lemon juice for some time or were fond of buttermilk. The remainder of the constipated cases had been for some time on a low residue diet. As soon as these latter individuals began consuming a normal amount of bulk, diarrhea appeared. These patients were usually admitted to the hospital for constipation and appropriate treatment started. Only after the diarrhea appeared was lemon juice ordered.

Underweight.—Six cases, or 12 per cent of the group, were definitely underweight. This is an important item because none of the group were overweight, that is, none were 10 per cent or more above the life insurance weights for age, sex, and height. Those who had recently lost weight have been listed separately from the chronically undernourished. If these two groups are combined, the number of patients definitely underweight is 10 or 20 per cent.

Anemia.—Since the majority of these individuals suffered from diarrhea with its resultant loss to the body of the mineral-containing foods, a relative anemia was expected. The records of the older cases are imperfect, so that only forty-four hemoglobin determinations on fifty cases are available. The average hemoglobin for the group is 79 per cent, with a range from 35 to 100 per cent. Cases of pernicious anemia have not been included in this report in spite of their achlorhydria because an attempt has been made to study this condition, as far as possible, isolated from complicating conditions.

Blood Pressure.—The blood pressure of this group is interesting because it is uniformly low throughout the series. The range of the systolic pressure of the males is from 82 to 160, with an average of 119.5; their diastolic pressure varied from 60 to 100, with an average of 75.6. The systolic pressure of the females varied from 90 to 200, with an average of 125.8; the diastolic variation was from 60 to 120, with an average of 74.4. Analysis of the records of the six cases in which the blood pressure was above 140 shows (1) that five of these individuals were older than the average of their group; (2) three had long-standing chronic nephritis; (3) one was a chronic alcoholic admitted to the hospital in delirium tremens. Hence it seems that some other factor is responsible for the production of blood pressure in achlorhydriacs. Deducting these six cases from the remainder of the group and making the necessary corrections, the average blood pressure for the females is 113/72 and for the males 109/73.

In this connection it is interesting to note that constipation and overweight have been observed clinically to occur repeatedly in association with hypertension. In this group of cases where diarrhea and underweight play a prominent rôle, low blood pressure is the rule. It seems *a priori* that there may be some factor common to constipation and obesity which elevates blood pressure and which was absent in this group.

Stools.—The analysis of the stools of the patients in this group practically always revealed undigested food particles, of which starch and fat were most frequent. Blood was present only when hemorrhoids occurred. In only one case was an intestinal parasite found. This patient had an ulcerative colitis in connection with his achlorhydria. A typical stool of this series is mushy, light brown to greenish, and riddled with gas bubbles. In short, it is similar to that of fermentative colitis. It was first thought that achlorhydria might be a part of the general picture of

fermentative colitis, but this was soon found not to be the case.

DIAGNOSIS

Since many or all of the above symptoms may be present in fermentative colitis and since the character of the stool is identical in them, a differentiation between achlorhydria and fermentative colitis must be made on the basis of the gastric contents. In fermentative colitis there is a normal amount of acid or a hyperacidity. Furthermore these cases do not improve when given the test of treatment with citrus fruits, whereas achlorhydriacs improve rapidly. Also it is rare to find a history of alternating attacks of diarrhea and constipation in a true fermentative colitis.

Of course this picture of achlorhydria must be differentiated from all others causing abdominal distress and diarrhea. We feel that it should be made: (1) upon the positive gastric findings, (2) the suggestive history and clinical symptoms, and (3) by exclusion of other conditions.

MANAGEMENT

The standard management of achlorhydria has been the administration of a mixture of dilute hydrochloric acid and pepsin. Ten to thirty drops of the U. S. P. dilute hydrochloric acid is usually given three times daily, although as high as sixty drops (Alvarez)[2] and ninety drops (Hurst)[3] have been given three times per day. This procedure has usually been efficacious. However, hydrochloric acid tends to produce an acidosis and lately evidence has been advanced to show that acidosis is a factor in the production of hypertension. Recently we have seen one case where the patient had taken hydrochloric acid for many years for an achlorhydria. His blood pressure had risen to 170 in the absence of infection or nephritis and promptly fell when citric acid was substituted for the hydrochloric acid and an alkaline diet was tried.

It seems *a priori* that citric acid might replace hydrochloric acid in the management of achlorhydria and that thereby an accompanying acidosis be avoided. Ivy, in a personal communication, states that he has found citric acid to be an efficacious stimulant to secretion formation. Hence in the early cases a citric acid-pepsin mixture was used. Its formula is as follows:

Rx. Citric acid
Scale pepsin āā 60.0
Elixir lactopepsin q. s. ad. 240.0
M. Sig.: One teaspoonful in one-fourth glass water before meals, three times daily.

This, however, proved too strong for the average case and has been discarded in favor of the citrus fruits, especially the lemon and the grapefruit. Orange juice apparently does not contain enough citric acid to be useful in this connection.

Our present instructions to patients are to use grapefruit for breakfast or with one of the other meals. The grapefruit should be eaten first. Two ounces of lemon juice well diluted with water or six ounces of grapefruit likewise well diluted with water should be taken with the other meals. A part of the fruit juice should be sipped before eating any food and the remainder sipped during the meal so that all of the food is mixed with the acid. The grapefruit and fruit juices may be sweetened with sugar to taste, as this does not neutralize the acid.

This simple procedure of taking a fruit cocktail with each meal has proved efficacious in all but three cases in this series. Forty-seven have reported prompt and marked improvement; one was a frank failure; one left the hospital prematurely; and the other is still under observation with no change in his symptoms. However, this last case has a stubborn ulcerative colitis along with his achlorhydria. Some of these cases have been observed for a period of two years. The adjustment is so delicate in some cases that if the sour fruit juice is omitted at any one meal the diarrhea returns in a few hours. Also if one-half to one hour elapses between drinking the juice and the taking of the rest of the meal, diarrhea may result.

In instances where lemon or grapefruit juice is not available the patient is advised to use vinegar in identically the same manner as the citrus juice.

REPORT OF CASES

Case 1.—E. O., male, thirty-eight years old. Complained of vague abdominal distress and tendency to loose stools for many years past. In preceding two months he had lost twenty pounds in weight. Blood pressure, 118/70. Hemoglobin, 70 per cent. Fractional Ewald as follows.

	Fasting	15 min.	30 min.	45 min.
Free HCl	0	0	0	0
Total HCl	5	10	7	13

This patient received the citric acid-pepsin mixture and pancreatin. Condition on discharge had improved.

Case 2.—P. O., male, forty-five years old. Complained of generalized abdominal distress, abdominal distention, borborygmus, and diarrhea of four months' duration. Since the onset of his illness he had lost twenty-two pounds in weight. Blood pressure, 112/80. Hemoglobin, 90 per cent. Standard Ewald showed 0 free HCl and 5 total HCl. Stools contained no parasites, starch, or fat. He was put on a nonresidue diet and given sour-fruit juices and the citric acid-pepsin mixture. Within two days his diarrhea stopped and he has remained well to date. If this patient neglects his sour fruit juice one day his symptoms return.

Case 3.—K. D., female, eighteen years old. Complained of alternating attacks of diarrhea and constipation, abdominal distress, abdominal distention, and canker sores of three years' duration. Blood pressure, 110/60. Hemoglobin, 85 per cent. Standard Ewald, August 2, 1927, showed no free HCl, and 20 total. On August 12, 1927, it again showed 0 free and 10 total HCl. Stools contained no parasites, starch, or fat. She was started on a low residue diet and given sour fruit juices with each meal, and calcium carbonate between meals. She left the hospital on a general diet with cooked fruits and vegetables. Her diarrhea was completely controlled.

Case 4.—V. S., female, thirty-seven years old. Entered the hospital November 12, 1927 to reduce. She had previously been on a relatively low residue diet. The first day after consuming the usual reducing diet she developed abdominal distress and diarrhea. Blood pressure, 120/70. Hemoglobin, 80 per cent. Standard

Ewald showed 0 free and 15 total HCl. A subsequent fractional alcohol test:

	Fasting	15 min.	30 min.	45 min.	60 min.
Free HCl.....	0	0	5	8	0
Total HCl.....	10	8	9	12	9

Stools show no parasites. She has been started on sour fruit juices and pancreatin.

Case 5.—M. G., female, thirty-seven years old. Complained of abdominal distress and alternating attacks of diarrhea and constipation all her life. In the past three years she has had hay fever annually. Blood pressure, 116/70. Hemoglobin, 80 per cent. Standard Ewald: 0 free HCl, 15 total. Fractional alcohol test:

	Fasting	15 min.	30 min.	45 min.	60 min.
Free HCl.....	0	0	0	0	0
Total HCl.....	10	10	10	25	28

Stools show no parasites. She has been started on sour fruit juices.

COMMENT

It is well known that there is an increased emptying time of the stomach in achlorhydriacs. This increase is probably due to the lack of, or inadequacy of, the usual acid stimulation to the pylorus. Acid chyme on the duodenal side of the pylorus has long been known to be the natural stimulus to contraction of the pylorus. As the acid chyme is neutralized by the alkaline intestinal juices this stimulus disappears, and as the intragastric pressure rises the resistance of the pylorus is overcome and acid chyme ejected. Immediately thereafter the pylorus again contracts.

When the natural acid stimulus is lacking the pylorus ejects food too rapidly into the duodenum. Also it is well known that the appearance of the hydrochloric acid in the stomach during the gastric phase of digestion is a natural stimulus for secretion of secretin, which in turn stimulates the flow of pancreatic juice. Hence, in addition to a too rapid emptying time, the achlorhydriac suffers from inadequate secretion of pancreatic juice. Both of these factors make for imperfect digestion of food. The incompletely digested food particles probably are responsible for the intestinal irritation manifested as abdominal distress, distention and diarrhea, of which achlorhydriacs complain.

The addition of citric acid in the form of sour fruit juices furnishes to the achlorhydriac a stimulus adequate to keep the pylorus closed until gastric digestion is complete and stimulates pancreatic digestion through greater secretive response than would be obtained in its absence. In addition, the fruit juices contain the alkaline minerals and vitamins so important to digestion from other standpoints.

SUMMARY

1. A series of fifty cases of achlorhydria is reported.

2. The characteristic symptoms of this group are: (1) abdominal distress, (2) abdominal distention, and (3) diarrhea.

3. Underweight, low blood pressure, and a relative anemia are characteristic of achlorhydriacs.

4. The mechanism of production of the symptoms is discussed.

5. Sour fruit juices (lemon or grapefruit) served with each meal is a simple reliable method of treating achlorhydria.

Cottage Hospital.

REFERENCES

1. Apperly: M. J. Australia, 1922, Vol. ii, 523; Ibid., 1923, Vol. i, 33.

2. Alvarez: Oxford Medicine, Vol. iii, 1, Ch. 11, p. 57.

3. Hurst: Lancet, 1923, Vol. i, 111.

DISCUSSION

John V. Barrow, M. D. (1110 Wilshire Medical Building, Los Angeles).—Doctor Sansum has done the medical profession a real service in discussing a symptom complex fairly common in chronic diseases, and the method of treatment which he has developed.

Achlorhydria is primarily a symptom of deficiency. The cause of the deficiency may originate from several sources. Secondary infection is probably the most important factor. The absorption of foreign proteins or other toxic bodies from infectious foci, or from the surfaces of the intestines, is practically always probable. It is particularly interesting to note that out of nine symptoms that impressed Doctor Sansum, six are directly associated with the intestinal tract, and, primarily, with its lower part. The three remaining symptoms are direct results of pathologic changes in the intestines. The percentage of diarrheal cases, including those of alternating diarrhea and constipation, is above 50 per cent. This is an incidence comparable to patients who are infested with *Ameba dysenteriae*. This whole group is one of deficiency. The stool analysis ought to reveal a great deal more than it has revealed to Doctor Sansum. These patients travel from physician to physician and from clinic to clinic. The treatment is often about the same, irrespective of the diagnosis, which nearly always differs with the clinic. It might be worth the effort to send a number of these patients to different diagnosticians and clinics, obtaining their respective findings and points of view. It is only by such a method we shall arrive at their proper treatment and establish their chronic etiology. A primary damage to the intestinal mucosa in any important segment certainly offers the best clue to the production of this type of deficiency.

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F. F. Gundrum, M. D. (Medico-Dental Building, Sacramento).—The clinical observations presented by Doctor Sansum are of intriguing interest. Diarrhea, often seen associated with the absence of hydrochloric acid in the stomach, is usually assigned to: (1) Bacteria reaching the intestine while still viable because of the failure of the antiseptic activity of the normal acid. (2) Irritation of the bowel by undigested food which has not had advantage of peptic action in the stomach. (3) Relative failure of the pancreatic secretion; due to the lack of normal duodenal stimulation by acid chyme or too rapid emptying of stomach contents into the intestine.

The first causative group explanation has at least the advantage that the presence of living bacteria in the upper duodenum has been demonstrated. The second and third explanations, though possibly of importance, lose much of their force when we consider the state of affairs in many patients who have had the pylorus closed and a gastroenterostomy done. In such patients there results permanently rapid emptying of undigested food into the jejunum, combined with failure of acid chyme in the duodenum, yet diarrhea is often not a complaint. On this account we must be somewhat cautious in accepting as correct the explanation of a phenomenon which seems to obtain under only one condition, which is the absence of hydrochloric acid from the stomach. The presence of free acid of any sort in the stomach may and prob-

ably does delay gastric emptying. This slowing up permits the pancreas more opportunity for secretion and may insure a better intestinal digestion. The authors' frequent mention of foamy stools, so often seen in pancreatic deficiency, rather lends support to this idea.

Doctor Sansum prescribes two ounces of lemon juice (containing 6 per cent citric acid) with a meal. This would amount to ¾ per cent acid at the end of a meal of one pound weight. The presence of citric acid in such amounts has no effect upon peptic digestion. In Snyder's laboratory at the Sutter Hospital we put into the incubator at 37 degrees C. cubes of lean beef in ½, 1, and 2 per cent citric acid solutions to which pepsin had been added. We set up control tubes with dilute hydrochloric acid in the same strengths. Daily examination of the tubes, estimating digestion by the solution of meat and making microscopical investigation of the bacterial content, gave the following results: The ½ per cent hydrochloric acid tube showed fair numbers of bacteria with moderate digestion; the 1 and 2 per cent showed no bacteria with marked digestion. The citric acid tubes showed no digestion in any strength. There were many bacteria in the ½ per cent tube; many bacteria and a few yeast in the 1 per cent; and a few bacteria with many yeast in the 2 per cent.

The subsequent report promised by Doctor Sansum should be of real interest.

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D. Schuyler Pulford, M. D. (Woodland Clinic, Woodland).—This report is especially valuable, first, in offering a simpler and more physiologic treatment for hypochlorhydria, and, secondly, in calling attention to this much overlooked entity. The authors' observation that two ounces of lemon juice and six ounces of grapefruit juice a day relieve the gastrointestinal symptoms, due to the absence of free gastric hydrochloric acid, is a boon to many patients, for "once an achlorhydriac always an achlorhydriac," and fruit juices are more welcome than dilute hydrochloric acid in a diet.

As pointed out by the authors, achlorhydria gives very suggestive clinical symptoms. It should be further emphasized that this syndrome is becoming increasingly prevalent, or at least more evident to those who are on the alert to find it.

If gastric analyses or the test administration of dilute hydrochloric or citric acid were given more frequently there would be fewer abdominal explorations for gall-bladder disease and duodenal ulcer. Cholecystic disease, without stones or colic, and the dyspeptic symptoms of achlorhydria often can be differentiated only by the stomach tube.

Furthermore, as has been frequently observed, removing a gall bladder, even when definitely diseased, will not relieve a patient of abdominal distress if the patient also has an achlorhydria. Likewise it should be emphasized that in a patient who has achlorhydria gastro-enterostomy for peptic ulcer is often unsatisfactory, for the alkalinizing effect of bile in the stomach does not change an already alkaline medium. This observation also calls our attention to the fact that dyspepsia from ulcer is not altogether due to hyperacidity.

Fractional gastric analyses of two hours' duration, and repeated at least once, are necessary for the absolute proof of the absence of free hydrochloric acid in the stomach contents. Those persons who produce a small amount of free HCl at times respond less favorably to this treatment than those who have a true achlorhydria. The true achlorhydriacs are more apt to have diarrhea than the hypochlorhydriacs.

This brings one to the most interesting and least known aspects of this subject, that is to say, the causes of achlorhydria. The finding of no free hydrochloric acid one day and its presence another time, along with our knowledge of both the inhibitory and exciting effects of certain alkaloids on gastric secretion, makes one believe that some chronic poisoning, as from a focus of infection, is the etiologic factor. This may act directly, or more probably through the glands of internal secretion, such as the adrenal, whose stimulation depresses the sympathetic ganglion with a consequent achlorhydria. This sympathetic exhaustion is probably the explanation of the diminished or absent free hydrochloric acid noted in the gastric contents of persons with long-standing hyperthyroidism.

Many patients who suffer from achlorhydria do not have diarrhea, though they are in the majority of cases underweight.

To the authors' symptoms of abdominal distress, abdominal distention and diarrhea, hypotension, underweight and relative anemia, I would add nervousness as a prominent symptom.

The medical profession should be deeply grateful to Doctors Sansum and Gray for this contribution to our knowledge on how best to handle the patient who has diminished or absent hydrochloric acid in the stomach contents.

LIVER EXTRACT IN PERNICIOUS ANEMIA—ITS EFFECTS*

WITH REPORT OF CASES

By Harry A. Wyckoff, M. D.
AND
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Discussion *by Ernest S. du Bray, M. D., San Francisco; George Dock, M. D., Pasadena; Fletcher B. Taylor, M. D., Oakland.*

THE communication of Minot and Murphy[1] in 1926 on the feeding of liver in pernicious anemia was followed by a prompt general recognition of the value of this treatment in a disease previously regarded as hopeless. Since then it has been shown beyond question that ingestion of liver leads almost invariably to "remission," and that the blood count and general well-being of the patient may be maintained over long periods of time by the continued use of the diet. The ultimate effect on the duration of the disease will become clear as time goes on. However, despite the persistence of the physician and the ingenuity of the dietitian, circumstances occur under which the effective administration of liver is attended by great difficulty. Liberal feeding is often impossible with patients who have low counts, great prostration, fever and attendant anorexia. Some people have an aversion to liver and absolutely refuse to take it in adequate amounts, and other patients may be almost comatose and may require tube feeding if large quantities of liver are to be taken. Finally the recent promiscuous prescription of liver by physicians for all sorts of anemias, as well as for other ailments, has led to a shortage which at times makes it impossible for those who really need the treatment to obtain adequate supplies from the local markets. It was inevitable, then, that attempts should be made to isolate in concentrated form the active principle responsible for the beneficial effect of liver therapy. Cohn and Minot[2] and their associates, and

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TABLE 1.—*Summary of Blood Counts Before and After Treatment*

Case No.	Age	Sex	Duration of Symptoms before liver treatment	Previous Diet	Count at Start of Treatment R.B.C.	Hb.%	C.I.	Count on Leaving Hospital R.B.C.	Hb.%	C.I.	Time (Days)	Remarks
Case 1.	37	M	1 year	?	1,400,000	35	1.20	3,900,000	79	1.0	56	No history of previous remission.
Case 2.	20	F	2 years	General	1,500,000	41	1.3	4,900,000	90	.9	46	No definite previous remission.
Case 3.	78	F	1½ years	General	1,800,000	65	1.8	3,950,000	83	.9	32	No previous remission.
Case 4.	64	F	2 years	No meat or liver	800,000	20	.8	4,400,000	78	1.1	40	No previous remission.
Case 5.	44	F	3 months	No liver; practically no meat for years.	1,500,000	35	1.2	.....	....	....		Treatment not complete yet.

West [3] have prepared effective extracts. Other preparations which are said to be potent are appearing on the market. Through the courtesy of the Pernicious Anemia Committee of the Harvard Medical School we were furnished, in the fall of 1927, with a liver extract [†] prepared according to the method of Cohn and Minot. The present report deals with the effect of this extract in a small series of carefully selected patients.

CLINICAL OBSERVATIONS

It seemed important to select only definite cases. This is not always easy since one encounters not infrequently instances of severe anemia without demonstrable cause but with features which are not altogether typical of pernicious anemia. In our opinion a combination of gastro-intestinal, neurologic and hematologic findings must be present in order to establish the diagnosis beyond question. Special stress should be placed on the presence of papillary atrophy of the tongue, splenic enlargement, impairment of vibratory sensation over the lower legs and feet, and gastric anacidity after histamin stimulation. The findings in the blood may vary at different stages of the disease and unless absolutely incompatible with a diagnosis of pernicious anemia, are of less value than the features which have been described. If typical they clinch the diagnosis.

PLAN OF TREATMENT

The general plan of treatment was as follows: The patients were kept absolutely in bed. They were offered a liberal general diet with plenty of fruit juice but without fresh liver. No drugs were given except for special symptoms. After one or more days of observation, during which control studies of the blood were made, administration of liver extract was started. The powder was dissolved in hot water, seasoned and taken as a concentrated broth. Daily counts of the reticulated cells, and frequent total counts and hemoglobin estimations were made. In Cases 2 and 4 a single transfusion was given before liver treatment was started. This complicates the interpretation of these two cases, but in our opinion no effect except slight mechanical rise in the red cell count is to be attributed to the introduction of blood.

REPORT OF CASES

CASE 1 (L. H. 168299).—A man, age thirty-seven, whose past history seemed unimportant, entered the hospital complaining of weakness. For a year he had felt tired and dizzy and short of breath on exertion. There had been some numbness and tingling of the feet and he was very despondent. The main physical findings were moderate undernutrition, extreme pallor, papillary atrophy of the tongue, impairment of the vibratory sense over the legs, some disturbance of muscle sense and hyperactive reflexes and gastric anacidity. He was very much depressed and at night was restless and apprehensive and felt that he was about to die. There was a marked anemia with a high color index, leukopenia, poikilocytosis, anisocytosis, and polychromatophilia. Liver extract was started after a control period of three days. The rise in reticulocytes began five days later and there was a steady improvement in general condition from then on. Slight fever which was present on entry subsided, the psychosis gradually cleared, and he left the hospital after fifty-six days, feeling quite well and having gained 6 kilograms. There was still impairment of vibratory sense without subjective neurological symptoms. The main features of his course are shown in Chart 1. He was instructed to eat 250 grams of liver daily in addition to a liberal general diet. Two months later he felt perfectly well, was at work, and the blood count was 5,200,000 with 87 per cent hemoglobin.

CASE 2 (S. H. 54059).—A woman, age twenty, whose past history seemed unimportant. She had always eaten a liberal general diet. Two years ago her mouth became sore and "blistered" and she began to feel weak. Shortly thereafter she began to have attacks of severe abdominal cramps with diarrhea. At times there has been temporary improvement, but on the whole she has gone steadily downhill. Recently she has been so weak that she fainted while at work. There has been no numbness of the extremities and only moderate loss of weight. The main points in the examination were extreme pallor with yellowish tint, papillary atrophy of the tongue, impairment of vibratory sense over the legs, and gastric anacidity. The blood showed a marked anemia with high color index, leukopenia, anisocytosis, poikilocytosis, megaloblasts, and myeloblasts. In spite of the patient's age, there seemed no question of the diagnosis of pernicious anemia.

Shortly after entry to the hospital she had a severe nasal hemorrhage, and a transfusion of 400 cc. of blood was given. Liver extract was started and a liberal general diet without fresh liver was offered. She ate practically no food, however, during the first week of treatment. The course of the blood is shown in Chart 2. On the fourth day after the extract was started the temperature, which had been slightly elevated, became normal and there was marked sub-

† This extract is now on the market with the approval of the Council on Pharmacy and Chemistry under the name of Liver Extract 343 (Lilly). Its properties have been adequately described in the report of the council and need not be detailed here.

jective improvement. The diarrhea and cramps ceased. On discharge from the hospital, after a stay of forty-six days, she weighed 116 pounds (a gain of forty-one pounds). The blood count was normal and the tongue appeared normal. There was still an occasional loose movement. Liver extract was stopped and she was told to eat one-half pound of liver daily in addition to a general diet. Two months later the patient was in college: weight, 132 pounds; red blood cells, 5,800,000; hemoglobin, 105 per cent. She felt perfectly well.

Case 3 (L. H. 159136).—A woman, age seventy-three, first entered the hospital in January 1927, complaining of dizziness, weakness, malaise, swelling of the face and ankles, and vomiting attacks for six months. On examination there was extreme pallor, slight papillary atrophy of tongue, impairment of muscle sense and vibratory sense over lower legs, and gastric anacidity. Red blood cells, 1,800,000; hemoglobin, 65 per cent; color index, 1.8; white blood cells, 4550. Marked anisocytosis and poikilocytosis. No nucleated red cells were seen. She was uncoöperative and soon left the hospital. She was urged to eat liver, but did not do so. Her condition remained about the same until October 1927, when she complained of sore tongue, became drowsy and weak and took to bed. On second entry, on November 23, 1927, there was extreme yellowish pallor although nutrition was well preserved. She was in a stupor from which she could only partly be roused. On the day after entry, liver extract, equivalent to 600 grams of liver, was given with some difficulty. For the first ten days she ate practically nothing although attempts were made to give broth, cereal, and eggnogs. She did, however, take the liver extract, and on the fifth day a typical reticulocyte response began. The changes in the blood are shown in Chart 3. A few days later the stupor lessened and it became possible to give a general diet in moderate amounts. On the eighth day there was remarkable improvement in her subjective state and she became alert and fairly cheerful. There was steady progress from this time on until she left the hospital, after a stay of thirty-two days. The count on discharge was: red blood cells, 4,000,000; hemoglobin, 83 per cent. After leaving the hospital she ate one-half pound of liver daily, and a month later the count was: red blood cells, 4,240,000; hemoglobin, 89 per cent. She was much improved although not very strong, and there was still some edema of the ankles.

Case 4 (S. H. 53775).—A woman, age sixty-four, who had always had a great aversion to meat and who had eaten none for years. For the past two years she had been going downhill steadily with increasing weakness, sore mouth and, finally, difficulty in walking. There had been no adequate medical attention and she was brought to the hospital nearly comatose. Examination showed marked undernutrition, smooth tongue, almost complete absence of muscle sense and vibratory sense over legs, absent knee-jerks, and gastric anacidity. On the day after entry a transfusion of 500 cc. was given and an attempt was made to feed liver, but she took only very small amounts. Six days after entry, liver extract was started. There was immediate rise in reticulocytes, probably partly due to liver eaten during the previous few days. From this time on there was remarkable subjective and objective improvement, and slight fever which had been present subsided. (See Chart 4.) She took practically no food for the first two weeks, but thereafter ate well of a general diet. On leaving the hospital, after forty days, she was up and about and walked fairly well, although there was still numbness of legs. Vibratory sense over legs and knee-jerks were still absent, but muscle sense in legs was almost normal. The tongue appeared normal. After leaving the hospital she ate one-half pound of liver daily, and a month later the count was: red blood cells, 5,090,000; hemoglobin, 88 per cent.

Case 5 (L. H. 172063).—A woman, age forty-four, entered January 28, 1928, complaining of weakness. For years she had eaten no liver and practically no meat. There had been sore mouth for a long time, but definite symptoms date from three months ago—weakness, drawing pains in the arms and legs, and difficulty in walking because "she did not know where her legs were." Examination showed moderate undernutrition, extreme pallor with yellowish tint, smooth tongue, palpable spleen, extreme loss of muscle sense and vibratory sense in both legs and arms, with hyperesthesia and gastric anacidity. She was placed on a general diet without liver and a liver extract (P), prepared in a different way from that which was known to be effective, was given in amounts equivalent to from 150 to 1200 grams of liver a day over a period of eleven days. This treatment (see Chart 5) led to no change in symptoms or rise in count. Then followed a period of seven days, during which whole liver was fed, but the patient refused to take over 200 grams per day which was ineffective. When the potent extract (343) was finally given in liberal amounts a typical response occurred after the usual interval of four to five days. This patient is still under active treatment.

COMMENT

In all five cases the response to liver extract was similar to that which occurs after feeding whole liver. After approximately four or five days there was an abrupt rise in reticulocytes followed by rapid rise in blood count and hemoglobin. These changes were coincident with remarkable subjective improvement, subsidence of fever, improvement in appetite, and disappearance of special symptoms such as depression (Case 1), stupor (Cases 3 and 4) and diarrhea (Case 2). The reticulocyte count reached its peak in a few days and returned more slowly to normal while the rise in red cell count and hemoglobin continued. There was no essential change in the neurologic disturbances. The principal facts in regard to the blood are summarized in Table 1.

Briefly, then, these observations indicate that the liver extract induced satisfactory remissions, and certain points in regard to the mode of action of the effective substance may next be discussed.

The Effect of Liver Extract Is Specific.—Remission was promptly produced in all five cases. There were prolonged control periods with other forms of treatment before the specific treatment was given and all five patients have since maintained normal counts on continued liver or liver extract feeding.

The administration of liver extract in *adequate dosage* may then turn out to be of diagnostic value since failure to respond in a typical way appears to be a strong evidence against the presence of true pernicious anemia. Whether the liver extract exercises any important effect in anemias of other sorts is not yet known and will have to be established by carefully controlled clinical observations.

The character of the induced remission, whether produced by liver extract or by whole liver, does not seem to differ fundamentally from spontaneous remission except in promptness and degree. This is well illustrated by Chart 6, which shows the course of a patient who was treated with rest in bed and a general diet without liver. The reticulocytes have been found to rise in spontaneous remissions,[4] fever subsides, special symptoms improve and, just as with induced remissions, well-being often returns before there has been much change in the count. After observing the

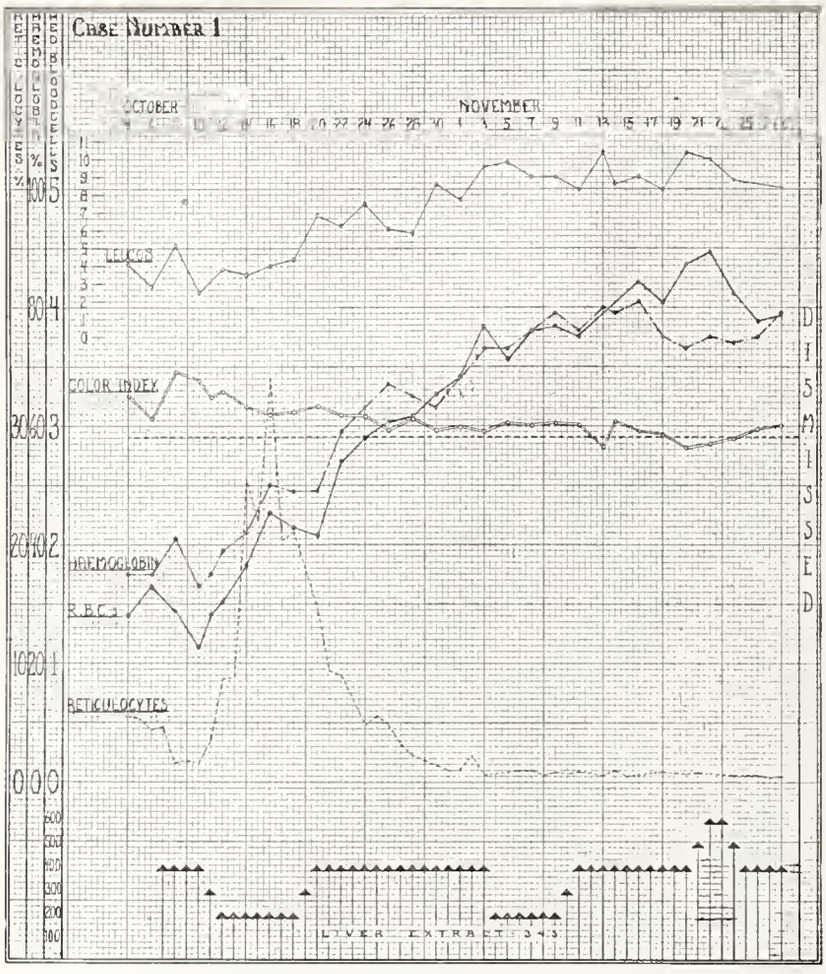

Chart 1

clinical course of many patients with pernicious anemia, one cannot escape the conviction that a general illness or "intoxication" has been abated coincidentally with objective improvement in the blood. Whether the effective substance in liver is something which has been lacking in the sense of deficiency disease or whether it neutralizes some injurious substance and thus allows the patient to rehabilitate himself is uncertain. The occurrence of spontaneous remissions in patients who have not only eaten no liver but who have been too ill to eat anything at all for periods of days or weeks seems to favor the latter view. Known deficiency diseases such as scurvy do not improve unless the missing vitamin is supplied.

One may conclude further that the effect of liver extract is not a matter of diet in the ordinary sense. In the original Minot and Murphy [1] treatment, emphasis was placed not only on liver but on other matters of diet, such as high total caloric value, liberal amounts of red muscle meat and fresh vegetables and a low fat content. It appears, however (Cases 2, 3, 4, and 5), that remissions promptly follow the taking of liver extract (which has a negligible caloric value) even when the patients eat practically no food; after remission is under way appetite improves and food is readily consumed. It is our impression that the character of the diet is of little moment provided liver is taken.

Cornell [5] has discussed the pre-disease diets of pernicious anemia patients. In our series one patient (Case 4) had eaten no meat or liver for years, another (Case 5) had taken meat only very occasionally. We have therefore, in this small group, a history of inadequate diet in 40 per cent of the cases. On the other hand, all vegetarians obviously do not develop pernicious anemia. It may be that deficient diet plus some other unknown factors must be combined before the disease develops.

A clear understanding of the action of the potent liver fraction will not be gained until more is known of the fundamental nature of pernicious anemia. Peabody's observations,[6] which demonstrate a return of the bone marrow from a condition of megaloblastic "degeneration" during the relapse, to an apparently almost normal state of hematopoiesis after liver therapy, supports Whipple's hypothesis[7] that there is a defect in blood formation rather than, or at least along with, abnormal destruction. Whether or not this is true, the relation of the blood changes to the general intoxication of the disease (fever, malaise), and to the gastro-intestinal and to the neurologic changes is entirely obscure. The effect of liver, then, in relation to the whole natural history of the disease, remains, as yet empirical. The matter is further complicated by the present lack of detailed knowledge of the effect, in secondary anemia, of the liver fraction which is potent in pernicious anemia. The classical observations of Whipple and his associates [8] on the hastening of the blood regeneration in experimental secondary anemias by feeding liver and other substances, serve only to confuse the problem at present. Inasmuch as the potent liver fraction seems to act in pernicious anemia by converting an abnormal form of hematopoiesis to a more normal mode of blood formation, some entirely different action must be assumed if the substance turns out to be effective in anemias due to simple loss of blood, unassociated with any fundamental perversion of blood formation. It is quite possible that liver may contain various elements, one of which is effective in pernicious anemia, whereas others may stimulate regeneration after mechanical loss of blood.

In actually carrying out the treatment with liver extract the quantitative relations are of the utmost importance. Relatively large doses are necessary to induce remission and to raise the count to normal; smaller doses, then, suffice to maintain the patient at a high level. The impression gained from the present series is that extract equivalent to at least 600 grams of liver is necessary at the start. Charts 1, 3, and 4 show with almost mathematical precision a slowing in the rise of red cells when the dose was temporarily decreased. In Case 5, 200 grams of whole liver per day for seven days produced no effect, but larger amounts

of the effective substance led promptly to remission. Extract equivalent to 200 grams of liver per day has so far proved to be an average maintenance dose after the count has reached its maximum.

Finally, the importance of using a potent extract must be stressed. The extract "P," used at first in Case 5, was quite inert and illustrates the difficulties which may be encountered. It behooves the physician to use only preparations which have been subjected to careful biological assay, and if such are not available, to resort to whole liver feeding.

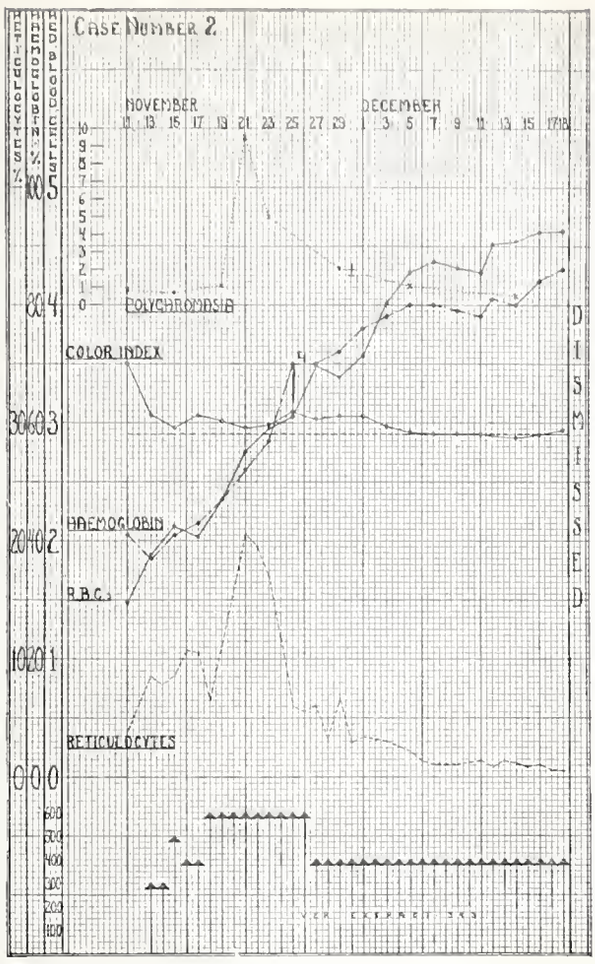

Chart 2

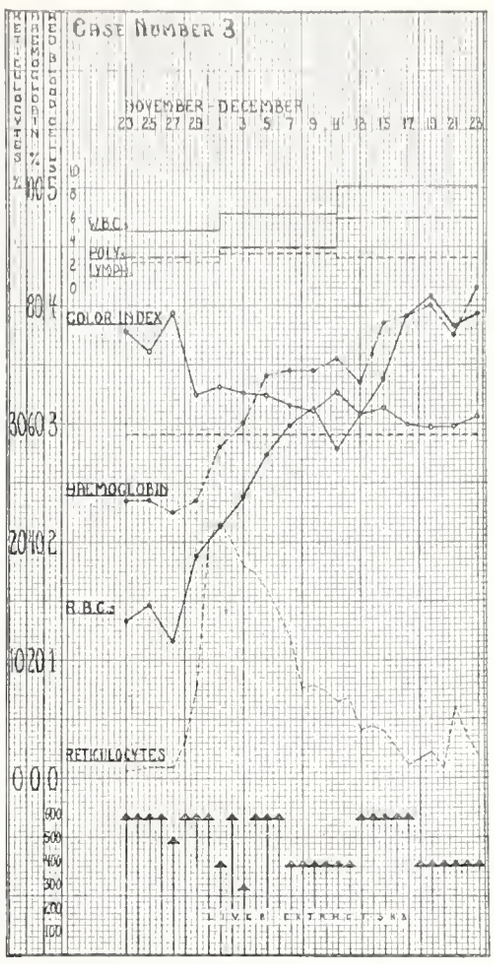

Chart 3

CONCLUSIONS

1. Extract of liver prepared by the method of Cohn and Minot was effective in producing satisfactory remissions in five consecutive cases of pernicious anemia.

2. The course of events was identical with that observed when whole liver is fed.

3. The extract was effective regardless of the character or amount of food which was taken.

4. Extract equivalent to about 600 grams of liver daily was necessary to produce satisfactory remissions; about one-third of this dose maintained the count and well-being of the patient.

5. No definite effect on the neurological changes or on the gastric anacidity was observed.

Stanford University Medical School.

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DISCUSSION

Ernest S. du Bray, M. D. (490 Post Street, San Francisco).—In the past two years numerous papers have appeared on the treatment of pernicious anemia by the liver diet as originally planned by Minot and Murphy of Boston. The present contribution of Wyckoff and Bloomfield stresses a refinement of the liver treatment of this disease, namely, the administration of the extract of liver substance. The reasons for the use of such an extract are clearly presented in this study. The effectiveness of the extract, as exemplified in the writers' five cases, is especially pleasing to medical men and obviously simplifies the management of this disease.

As the writers state, it is too early to determine what will be the ultimate result of liver therapy; however, it is clearly shown that a remission in the disease can be promptly initiated by the use of the extract.

It cannot be said that the underlying cause of pernicious anemia is as yet known. Because of its rapid response to liver therapy, it has been intimated that it may be a true deficiency disease and that liver supplies a vitamin. This hypothesis, however, is not generally accepted. Nevertheless, it appears that the extract supplies to the organism a specific substance which exerts a profound influence, not to be obtained through any other known food component or other agent. This is forcibly stated by the authors as follows: "It is our opinion that the character of the diet is of little moment provided liver is taken."

The present study will be welcomed by California physicians as an authoritative, concise, and scientific

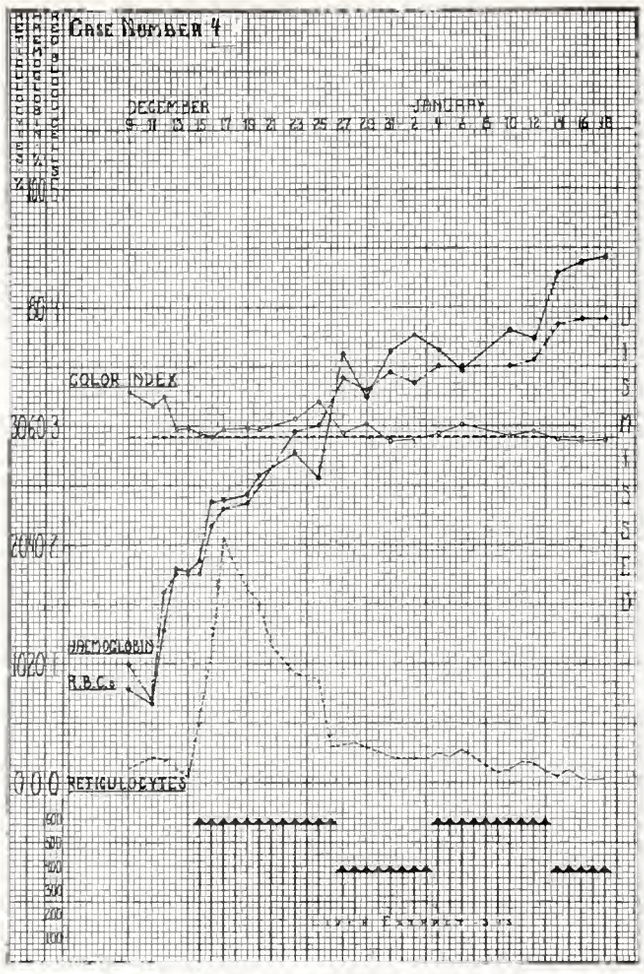

Chart 4

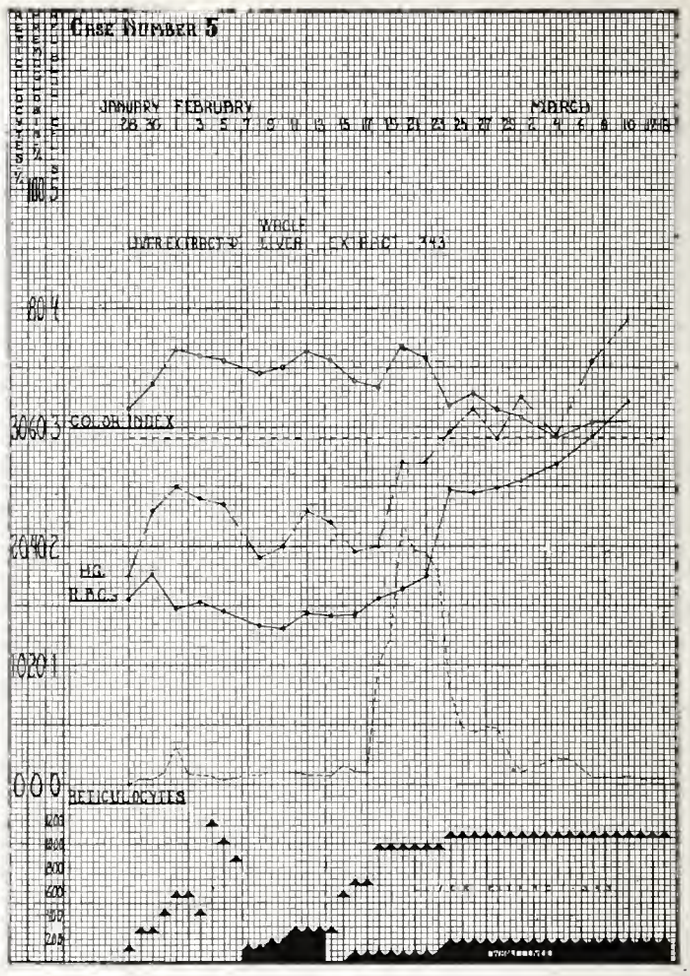

Chart 5

presentation of the effects that may be expected from liver therapy in pernicious anemia. It is especially gratifying to us that the fundamental experimental investigations which underlie the application of the liver therapy method as developed by Minot, should have been established by Whipple and his coworkers at the Hooper Foundation for Medical Research.

❦

George Dock, M. D. (94 North Madison Avenue, Pasadena). — The authors are to be congratulated upon giving so acute a discussion of liver therapy based as it is on so small a number of cases. Of course the authors are familiar with the whole subject. Their own five cases are briefly but adequately described. All made prompt remissions under the administration of liver extract, without other special diet or medication. They think at least the equivalent of 600 grams of liver is necessary to begin the remission, though the equivalent of 200 grams may be an adequate maintenance dose. They also emphasize the necessity of a potent extract. If standard extracts are not accessible it is better to use whole liver. Of course such facts are now multiplying rapidly. They can become much more valuable than merely piling up brute figures if the thoughtful analytical reasoning of Wyckoff and Bloomfield is imitated in each series. Prompt and decisive as the remissions were in their cases, the authors are well aware that remissions just as striking have been observed in the past, without liver, under various methods of treatment, of which those employing arsenic and hydrochloric acid are most common, but also without special care, or even with complete neglect, as in patients who were supposed to be moribund and left untreated. That five consecutive spontaneous remissions could occur is too great a stretch upon one's credulity, and the large numbers reported since Minot and Murphy first reported on liver feeding make it necessary to search for explanations. The question may be raised whether liver treatment has failed in genuine pernicious anemia, for such cases might offer important suggestions for investigation. It is to be hoped the authors' suggestions for the diagnostic use of liver extract be acted upon as widely as possible. The authors raise an important question in regard to the previous diets of pernicious anemia patients. In view of the many cases in exceptionally intelligent people such investigations could be made with great success by family physicians in all parts of the country. That liver extract may contain various elements, some of which may be useful in other anemias is another valuable suggestion of the authors.

❦

Fletcher B. Taylor, M. D. (1904 Franklin Street, Oakland). — Substitution for bulk liver-feeding is a welcome and practical research effort. The availability of a potent extract such as that used by the authors

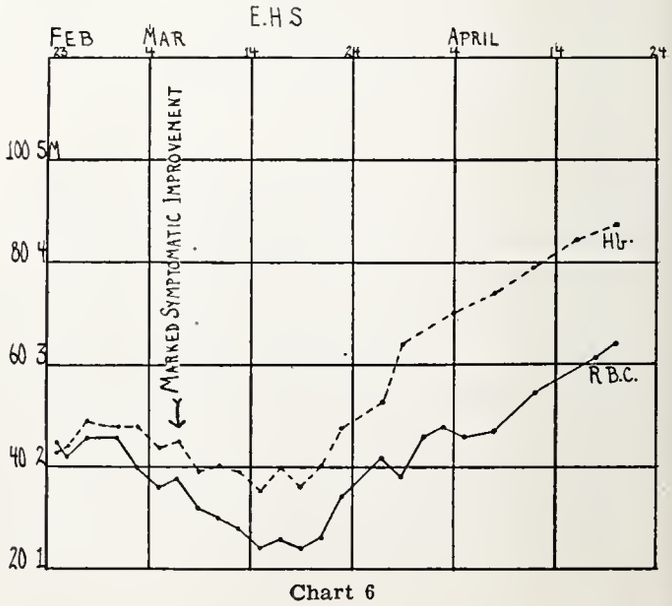

Chart 6

will increase the scope of this therapy. It is gratifying that the authors have not been dogmatic or universal in their conclusions and especially that they do not claim for liver or its extract any "definite effect on the neurological changes or on the gastric anacidity." Two patients seen during the year had prompt, complete remissions of the blood picture on liver-feeding; but, while the blood improved, cord changes became worse. Experiences of this kind will temper the popular enthusiasm which has become too general. We will look forward to future work which may separate primary anemia into its several entities with further correlation of etiology and treatment.

ENDEMIC GOITER IN CALIFORNIA—ITS DISTRIBUTION*

By Henry Hunt Searls, M. D.
San Francisco

and

Paul Sharp, M. D.
Klamath Falls, Oregon

Discussion *by Ruby L. Cunningham, M. D., Berkeley; Carl L. Hoag, M. D., San Francisco; Harry E. Henderson, M. D., Santa Barbara.*

THE endemic quality of certain types of goiter, namely adenoma, colloid and simple hypertrophy, has long been recognized. Much has been written and more than forty theories advanced in an effort to account for such a regional distribution of the disease. Only a few of these explanations are considered today, but each has its exponents.

It is notable, however, that drinking water is considered a responsible factor by all.

THE REGIONAL DISTRIBUTION OF GOITER

McCarrison [1] of the Indian Medical Service concluded after long and intensive studies in the goitrous districts of India that endemic goiter has an infectious basis for its development. Crotti [2] in this country holds this view. Marine,[3] working in Ohio and Pennsylvania, supported Kocher's idea of an iodin deficiency as the causative factor. His success in prevention of goiter by administration of iodin to schoolgirls remains a classic in preventive medicine and offers strong support for this viewpoint.

It is possible that both factors play separate as well as combined parts in goiter development.

GOITER INCIDENCE IN CALIFORNIA

At the University of California Hospital 2289 patients had been treated for goiter up to January 1, 1928; and of these, 1351 were of the endemic types. An examination of the case records of these endemic groups was made in an effort to determine from the residence history, the locality in which each goiter had developed. Four hundred and forty-four of the 1351 endemic patients were found each to have acquired goiter while living in one definite locality. No case was accepted for this study where there was any doubt as to the residence at the time of development of the goiter. Many had always lived where they had been born.

ANALYSIS OF THE UNIVERSITY OF CALIFORNIA HOSPITAL STATISTICS

On a map of the state the individual cases were then plotted as separate dots in the counties where they had developed the goiter (Fig. 1).

The factors of density of population and accessibility and reputation of the clinic have a very definite bearing on the data shown on this map. Evidence is here offered, however, that the endemic types of goiter do develop in very considerable numbers in certain of the northern counties of the state.

The factor of density of population was eliminated by obtaining the census [4] of the various counties and reducing the incidence to the rate per 100,000 population for each county (Fig. 2). On this map, portraying these data more clearly than on the first map, certain counties show a high goiter incidence.

Both maps show a goiter belt which runs northward from Monterey County along the coast to Del Norte, then across the northern end of the state and thence southward, with the highest incidence of all along the western slope of the Sierra Nevada. This positive evidence only is offered; and the inference is not drawn that those counties showing a low incidence are not goiter foci, for patients developing goiter in such localities may have sought relief elsewhere.

The view that endemic goiter is a direct result of iodin deficiency is given considerable support by these maps. Several factors exert their influence toward keeping the iodin content of drinking water low. One: If there is only a short distance between the area of precipitation and the locality served, then the water does not have the opportunity to leach much iodin from the soil. Two: If precipitation is heavy, then any iodin that is dissolved out of the soil is held in extreme dilution because of the large volume of the water. Three: If the soil is low in iodin content (as is notable in glaciated regions), then less is available for solution.

INTERPRETATION OF THE ILLUSTRATIONS

By shading all counties where an incidence of twenty-five or more per 100,000 was found and comparing the result (Fig. 3) with a relief map (Fig. 4), the endemic foci are seen to lie accurately in the mountainous regions of the northern part of the state. Here, too, the precipitation is very heavy, and for the most part the drinking water travels but a short distance to consumption. Also, some of these regions lay under the great ice sheet during the glacial period and have had the iodin washed out of their soil by the large amounts of water liberated by the melting ice at the end of that time.

In the counties lying along the western slope of the Sierra Nevada all of these factors which tend to keep the iodin content of the drinking water low are to be found. Here the goiter incidence is very high. In the remaining counties,

* From the Department of Surgery, University of California Medical School.

* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

where goiter has been found in considerable numbers, the factors of heavy rainfall[5] and short distance between watershed and locality served tend to keep the iodin content low.

The high incidence in the Santa Clara Valley may not be accounted for by these causes. The water supply here has until recently been chiefly from wells. Wells in various parts of the world have been notorious in the development of goiter. The possibility that McCarrison's theory (on an infectious basis) explains the focus in the Santa Clara Valley, as it would seem to have in India, must be considered.

COMMENT

In closing, it would appear logical to urge upon those of you who are responsible for the health of the inhabitants of these areas where goiter is so commonly found to follow in the footsteps of Marine and Kimball in their work in Ohio. The administration of iodin to the school girls of the goiter regions of the state would markedly reduce the incidence of goiter and its attendant disabilities and complications.

University of California Hospital.

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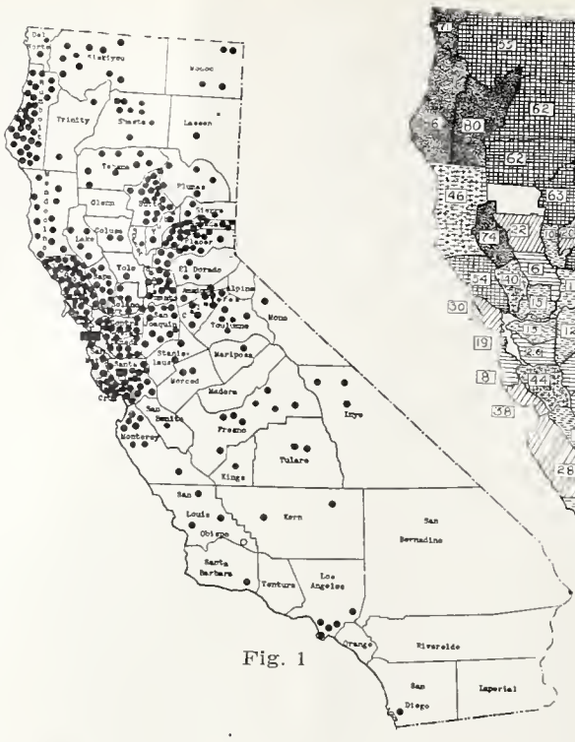

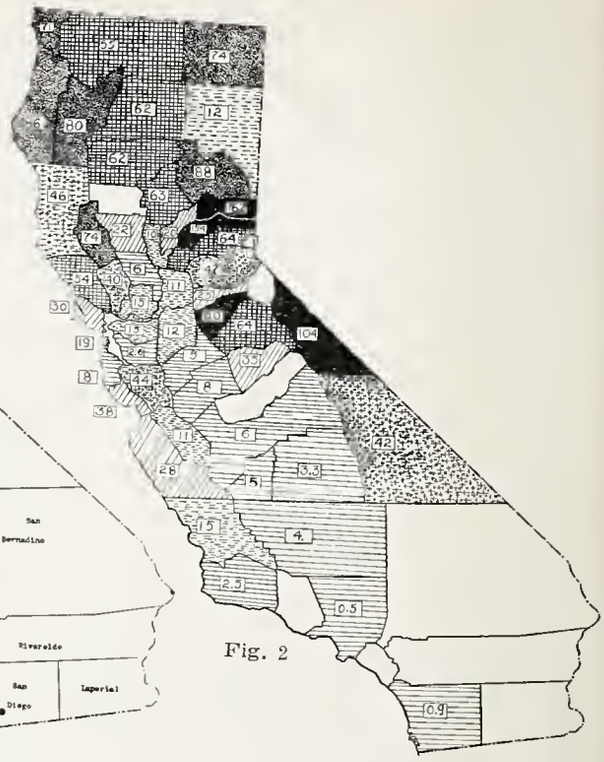

Fig. 1.—Distribution of endemic goiter in California, 1913-1928.

- Ninety-eight cases.
- Thirty-two cases.
- Single cases.

Fig. 2.—Endemic goiter in California, January 1, 1928. Goiter incidence by counties per one hundred thousand.

Fig. 3.—Shaded area shows counties with incidence of twenty-five or more per one hundred thousand, January 1, 1928.

Fig. 4.—Picture of relief map of California.

DISCUSSION

Ruby L. Cunningham, M. D. (University of California Infirmary, Berkeley).—A physical examination is a part of the requirement for entrance to the University of California. This gives an opportunity of seeing large numbers of young people from all parts of this state. In 1926 a study of the correlation of residence with incidence of enlarged thyroids was undertaken and the results published in the November issue of this journal of that year.

The endemic areas of the state thus determined correspond almost exactly with those pointed out by

Doctor Searls and Doctor Sharp from their study of patients coming to the University of California Hospital for medical care.

The student figures show highest incidence in the glacial area of the northern part of the state. Both the Sierra Nevada and Coast Range mountain counties had high incidence of enlarged thyroids, while practically no students spending their full life in the counties of the floor of our two great valleys had thyroid enlargement.

Our large cities are fast arranging for water supplies from the high mountains. It will be interesting to watch their thyroid incidence of the next twenty years, or to watch or take part in such investigations and iodin therapy as may be indicated by the iodin content of the mountain water supplies.

It would be especially valuable to determine at this time the percentage of enlarged thyroids among high school students. Again after a number of years of the use of Sierra Nevada mountain water by our large cities, a second determination might point clearly to the part played by the water supply where other factors remain unchanged.

❊

Carl L. Hoag, M. D. (177 Post Street, San Francisco).—Doctor Searls' and Doctor Sharp's paper shows very clearly that the mountainous regions of our state are the source of most of the endemic goiter to be found here. As they also state, a number of the counties show a small incidence, but this decreased number may be the result of patients seeking relief elsewhere. It will be noted that the number for Mendocino County is small, compared with that of Humboldt County on the north and Sonoma County on the south. I can supply nineteen cases for this county which will bring up the number to the average of the Coast region. Likewise, the Coast counties, farthest south, frequently seek medical advice in Santa Barbara and in the southern part of the state.

It would be most interesting if other physicians doing goiter work would make a similar map of goiter distribution so that a composite result might be arrived at which would express the real goiter situation of our state. Any such map, of course, would have to be interpreted on the basis as to whether or not its water supply was derived locally, or from the various mountain ranges.

As Doctor Cunningham so ably points out, we should see a large increase in the incidence of endemic goiter in the bay region when the Hetch Hetchy water supply is in full operation.

❊

Harry E. Henderson, M. D. (1421 State Street, Santa Barbara).—Doctor Searls' and Doctor Sharp's survey shows us that the greatest incidence of endemic goiter in California undoubtedly lies in the mountainous region of the northern half of the state. I believe, however, that a careful check of the southern coast counties would show a higher percentage of goiter per 100,000 population than that found by the authors. I can supply several cases from Santa Barbara who have always lived in that locality. The water supply for the city of Santa Barbara is surface drainage from a small watershed and is known to be very low in iodin content. A number of bottled waters from springs in the vicinity have a high iodin content, and as these are quite widely used it may make some difference in our goiter incidence.

As Doctor Cunningham has stated, it seems to me that a study of thyroids in high school students of the state would be a very valuable procedure not only for prophylaxis but in determining further the goiter distribution. Large groups of high school students are more representative of their districts than the students of university or college.

UNILATERAL EXOPHTHALMOS IN TOXIC GOITER*

WITH REPORT OF CASES

By Samuel A. Durr, M. D.
San Diego

Discussion *by Frederick C. Cordes, M. D., San Francisco; Dohrmann K. Pischel, M. D., San Francisco; A. Ray Irvine, M. D., Los Angeles.*

In the last three years two cases of unilateral exophthalmos have come under the writer's observation, both of which showed evidence of hyperthyroidism, neither patient having any other condition which might explain the eye findings. Both of these patients recovered completely, in so far as the exophthalmos was concerned. Ordinary medical treatment for hyperthyroidism was instituted, and exophthalmos did not recur during the period of observation; in one case, two years, and in the other, eighteen months. These cases would seem worthy of mention, since most textbooks fail to mention goiter as a cause of this condition, or lay no stress on it, and reports in the literature are rare.

It is not necessary in a meeting of this section to discuss fully the various causes of exophthalmos, but brief mention will be made of the commoner ones. In general, exophthalmos is caused by orbital disease, including tuberculosis and syphilis, cellulitis of the orbit, complicating sinusitis or acute exanthematous disease, tenonitis, tenotomy, thrombosis of the cavernous sinus, tumors of the orbit either primary or metastatic, and trauma resulting in orbital hemorrhage, air in the orbit from the nasal cavity, or pulsating exophthalmos. Goiter is, of course, one of the commonest causes, but unilateral exophthalmos due to goiter seems distinctly unusual.

REPORT OF CASES

Case 1.—The first patient was seen January 9, 1926. She was a married woman, forty-one years old, whose right eye had deviated outward since infancy. Vision had always been very poor in the right eye. Her chief complaint was a forward bulging of the right eye which had been present in varying amount for the previous three weeks. Examination showed a divergent squint of fifteen degrees, the left eye fixing. Movement of both eyes was full in all directions, there being no paresis of the right internal rectus. Vision with the right eye was limited to light perception, the left eye had a visual acuity of 20/20. There was an exophthalmos of the right eye which measured three millimeters with the corneal sight on a Bausch and Lomb trial frame. The fundi were entirely normal, the low visual acuity of the right eye being amblyopia ex anopsia. A superficial general examination showed an enlarged thyroid, the right lobe slightly larger than the left. A rapid pulse and a fine tremor were noted. The left eye was said to be in its normal position and corresponded exactly with old photographs. There was a suggestion of lagging in the left upper lid, but no other lid signs of goiter. X-ray graphs of the orbit and sinuses were entirely normal, and nose and throat examination revealed no pathology. The patient was referred to Doctor Churchill, who worked out a basal metabolic rate of plus 34 and plus 42 on two different occasions, corroborating the diagnosis of toxic goiter.

* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

Under bed rest and iodids, the right eye rapidly came back to its usual position, and in three weeks there was no demonstrable exophthalmos, nor has there been any since. A subtotal thyroidectomy was advised, but refused.

Case 2.—The second case was brought to my attention by Dr. C. M. Fox. The patient was a married woman of twenty-four, first seen October 14, 1926. Her chief complaints were exophthalmos of the right eye, present for four weeks, a rapid pulse and nervousness. Examination showed an exophthalmos of two millimeters in the right eye, but no other ocular abnormality. The various lid signs were entirely absent in the left eye. The fundi showed no change. Muscle balance was essentially normal, the convergence near point being ten millimeters, and visual acuity in each eye was 20/15. The thyroid was uniformly enlarged, there was a fine tremor, and the pulse rate was 124. The basal metabolic rate was plus 38. Nose and throat examinations were negative. X-ray graphs of the orbit and sinuses showed no pathologic changes. A month later, after rest and iodids at her home, the exophthalmos had disappeared, and her general health was much improved. Thyroidectomy was also refused in this case.

COMMENT

While these two records are inconclusive, both would seem to have been caused by hyperthyroidism alone, although other conditions cannot absolutely be ruled out. They at least suggest the necessity of investigating the condition of the thyroid before attempting, in unilateral exophthalmos, to make a diagnosis of the underlying pathologic changes.

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DISCUSSION

Frederick C. Cordes, M. D. (384 Post Street, San Francisco).—It is well to have our attention called to the possibility of a toxic goiter being the cause of unilateral exophthalmos. As ophthalmologists, who see relatively few cases of this type, we are apt to draw the conclusion that unilateral exophthalmos is rare in this disease.

Where a relatively large number of toxic goiters are seen it is found that approximately one per cent of these show unilateral exophthalmos. In about five per cent of the cases the exophthalmos is more marked on one side.

The thyroid surgeons feel that acquired exophthalmos (exclusive of the cases where there is orbital pathology) is due always to hyperplasia. Their opinion is that this also applies to the unilateral cases of exophthalmos that have been attributed to pressure on the cervical sympathetic by an adenoma of the thyroid.

❦

Dohrmann K. Pischel, M. D. (490 Post Street, San Francisco).—Monocular exophthalmos in toxic goiter was noted as long ago as 1846, when the Viennese ophthalmologist, Von Sichel, working in Paris, described such a case. Since then many have been reported, Sattler in 1907 having collected 109 cases from the literature.

Statistics as to the percentage of such cases among patients with exophthalmos differ greatly, varying from 1 to 10 per cent. By a small percentage the majority of cases of monocular exophthalmos are right-sided. In many cases a one-sided protrusion of months or even years' duration precedes a final bilateral exophthalmic state.

The relation of monocular exophthalmos to asymmetrical enlargement of the thyroid gland is interesting. Usually the exophthalmos is present on the same side as the greatest enlargement, but in a surprisingly large percentage of cases the signs may be crossed. Furthermore, after resection of one side of the gland, the exophthalmos on that side frequently disappears entirely, whereas that on the opposite side remains stationary.

❦

A. Ray Irvine, M. D. (1142 Roosevelt Building, Los Angeles).—Exophthalmos of both eyes, in which the exophthalmos is more pronounced in one eye, has been frequently observed. In my experience I have only had one case in which the protrusion occurred in one eye only. This man, age sixty-four, was seen for the first time in August, 1927. The exophthalmos was very marked in the left eye, so much so that there was difficulty in closing his eye. The fundus was normal. All other examination, including x-ray, excluded any local condition which might be a cause. General examination showed a slight tremor, paroxysmal tachycardia, six pounds loss of weight, moderate goiter of an adenomatous and cystic type. The internist, after metabolism and other tests, concluded that the goiter was toxic and advised its removal. The patient made an uninterrupted recovery, gained in weight, and improved generally. But the exophthalmos still persists. There has been no exophthalmos in the right eye.

RADIATION TREATMENT OF UTERINE FIBROMYOMATA*

By Albert Soiland, M. D.
William E. Costolow, M. D.
and
Orville N. Meland, M. D.
Los Angeles

Discussion *by Clarence G. Toland, M. D., Los Angeles; L. A. Emge, M. D., San Francisco; William Henry Gilbert, M. D., Los Angeles.*

DURING the past ten years radiation has been definitely established as a method of treatment for uterine fibromyomata. Gynecological literature from all parts of the world has been replete with reports regarding the successful use of radiation in this condition, and it has been adopted in all intelligent and well-informed medical centers. It is, therefore, no longer necessary to argue the value of this method of treatment in uterine fibromyomata, but simply to define the limitations of its use, determine the cases which are best suited for radiation treatment, and those best suited for surgery.

Some gynecologists with steadfast surgical inclinations, and experience in the radiation treatment of only a small number of cases, have attempted to limit the radiation field so rigidly that only a small percentage of cases would be radiated. Experiences with large numbers of cases, however, show that this rigid limitation is not necessary; Beclere even stating that his experience in seven hundred cases radiated teaches him that "The only conclusion permissible is that the only obstacle to successful treatment is the submucous myoma." Only nine cases (one per cent), out of his entire series of seven hundred, required surgery later. As early as 1922 we find Howard H. Kelly of Johns Hopkins stating that "He who would give his patients the same consideration he would give his wife or sister must put radium first in the treatment of fibroid tumors. In uncomplicated fibroids, especially when asso-

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ciated with excessive bleeding, there is no treatment as satisfactory as radium. In our hands there has been, in several hundred cases, no mortality, and the bleeding has been checked in almost every case. The radiation as a rule in no way interferes with or makes more difficult, or contraindicates a later operation if this should eventually prove necessary. I should like to go on record here to the effect that in a high percentage of large tumors there is either a complete disappearance or a marked reduction in size of the large growths."

IMPORTANCE OF CORRECT DIAGNOSIS

The correct diagnosis of pelvic pathology is of more importance when radiation is to be used than when surgery is to be the method of treatment, because the surgeon, in the event of his diagnosis being wrong before operation, can see what the condition is after the abdomen is opened. No one is justified in applying radiation treatment without training in pelvic diagnosis and without having used every method of careful pelvic examination to determine, as accurately as possible, the differential diagnosis of the type of fibromyoma and associated pelvic pathology.

SELECTION OF CASES

Some submucous fibroids may be treated with better results by surgery than by radiation, but this is not by any means always true. A submucous fibroid which is pedunculated and protruding from the cervix is, of course, more easily removed by means of surgery, but we have several of these cases in our series where operation was contraindicated, and where a combination of radium and x-ray treatment was successful. It is not always best to use radium in the submucous fibroid cases, but x-ray therapy may be used without fear of causing local necrosis or sloughing.

Some writers have attempted to limit the use of radiation in fibromyomata to growths which are not larger than a four months' pregnancy. Undoubtedly the results of radiation are more certain in tumors of this size than in the large tumors. A large, uncomplicated fibroid, however, may be caused to entirely disappear, or may be reduced so much in size as to render it symptomless. Large fibroids causing acute pressure symptoms may best be relieved by surgery if there is no contraindication, as relief by means of radiation is slower. Many of the large multiple growths in our series, a number of which were pedunculated, entirely disappeared, while others were reduced to such a small size as to be without symptoms.

Surgery should be considered first when a definite ovarian cyst can be made out, complicating a fibroid, and producing symptoms, because the cyst will not respond to radiation.

RADIATION IN YOUNGER WOMEN

The operation of myomotomy has been advocated in the case of young women, within the childbearing age, who have fibromyomata so situated that they may be enucleated without deforming the uterus to the extent that childbearing would be impossible. It has been estimated that probably in only 6 per cent of all cases is this possible (Lockyer). In Mayo's series of 741 myomectomies, 59 (or 7.9 per cent) later became pregnant. Nineteen of the cases of this series came to operation later (mostly for infection), the hazard here being the opening into the uterine cavity. However, as Bland-Sutton states, "Experience teaches this stern lesson; after the enucleation of a fibroid in the procreative period of life, a woman is more likely to grow another fibroid than to conceive successfully."

Six cases in our series had previous myomectomies. The literature reports a number of normal pregnancies in cases where radiation had previously been administered. Of twenty-five married women in our series, where only a temporary amenorrhea was produced, three later became pregnant. If it is necessary for a hysterectomy to be performed in the young woman to remove the fibromyoma, then radiation may as wisely be chosen for the therapeutic agent. After the elimination of the tumor in the young individual, there is a possibility of the menstruation returning and being normal. Even if menstruation does not return, the menopause will not be any different from that produced by hysterectomy. The woman is not unsexed by the radiation, and there has never been any change observed in the secondary sexual characteristics. There is strong evidence to believe that the internal secretory function of the ovary is not destroyed, and that the chief action on the ovary is in the outer graafian follicle layer.

OCCURRENCE OF ASSOCIATED MALIGNANCY

The occurrence of malignancy in association with uterine fibromyomata has been greatly exaggerated. It is often mentioned that there is great danger of sarcomatous degeneration. In 1922 Dr. John G. Clark remarked regarding this degeneration in myomata as follows: "If there was ever a fallacy that should be annihilated, this is one. The frequency of sarcomatous transformations in myomata is so small as to be negligible."

There is some danger of carcinoma of the fundus being associated with uterine fibroids, although it is a fairly rare condition. Carcinoma of the fundus should always be borne in mind, especially in the late menopausal years or in cases past the average menopause age. In our series there were only six (or 1.06 per cent) cases with associated carcinoma of the fundus; three of these were past the average menopause age. If careful curettement is done before the radiation treatment this danger can be made negligible. Should irregular bleeding develop later, indicating malignancy, operation can be resorted to, with probably better ultimate success after the preliminary radiation.

In the consideration of malignancy associated with fibromyomata, there is one fact which is often lost sight of when subtotal hysterectomy is performed; namely, the frequency of the later occurrence of carcinoma in the cervical stump left behind. In a study of the literature, Polak mentions 256 cases of cancer of the stump, all

of which occurred after one year. In our clinic, in the past six years, we have seen eighteen cases of carcinoma of the cervical stump in patients who had previously had subtotal hysterectomies for uterine fibromyomata. So far as we know, carcinoma of the cervix has never occurred later in any of our cases of uterine fibromyomata treated by radiation. After combined radium and x-ray treatment of fibromyomata, the cervix is left small, atrophic, and fibrous. The danger of later development of carcinoma is certainly greatly lessened, if it ever occurs.

PELVIC INFLAMMATION ASSOCIATED WITH UTERINE FIBROMYOMATA

Some gynecologists have claimed that associated pelvic inflammation is a contraindication to the radiation treatment of uterine fibromyomata. We believe that the intra-uterine use of radium, following curettement, would be unwise in the presence of definite palpable pelvic inflammation; the curettement alone would probably be sufficient to stir up an acute inflammation. However, we do not believe that the associated pelvic inflammation is any contraindication if deep x-ray therapy is used. The deep x-ray therapy is probably one of the best methods of dealing with the associated pelvic inflammation. In this connection it must also be remembered, as stated by Pankow, that the cases with associated pelvic inflammation are the ones which make the operative treatment more difficult and contribute most to the operative mortality of myomas. Ford has shown in the study of a series of cases of uterine fibromyomata, operated at the Mayo Clinic, that there was some degree of associated pelvic inflammation in 40 per cent of the cases. In a corresponding group of 344 cases treated by radiation it was also observed that there was not any evidence of an exacerbation of an inflammatory process. Pelvic inflammation must certainly also have existed in a corresponding percentage of these cases. In the intra-uterine use of radium, in 315 cases in our series, we did not see any evidence of an acute exacerbation of a pelvic inflammatory process. A great many of these cases must have had some associated pelvic inflammation.

SEVERE ANEMIA ACCOMPANYING UTERINE FIBROMYOMATA

Anemia was a symptom of serious consideration in seventy-eight of our cases; the majority of these being victims of a chronic menorrhagia which had lasted many years and had produced a definite anemia, with signs of cardiac degenerative changes. A number of these, especially the twelve with hemoglobin below 25 per cent, were positively inoperable. One patient with a hemoglobin of 17 per cent was practically moribund when the intra-uterine radium was applied; she completely recovered and her general condition is splendid at the present time. In this entire group of seventy-eight cases not a single case was required to go to operation later for any complication. All of the seventy-eight are entirely well with the exception of one patient who had 18 per cent hemoglobin when treated, and although she showed some improvement, died four weeks later from the effects of her severe anemic and cardiac damage. Surgical operation certainly could not have been performed with the hope of success in nearly so many cases of such a serious group.

METHODS OF TREATMENT

The following four methods of radiation treatment of uterine fibromyomata may be employed:

1. So-called low voltage x-ray therapy.
2. High voltage or deep x-ray therapy.
3. Radium therapy.
4. Combined radium and high voltage x-ray therapy.

We shall briefly consider the indications for the use of these various methods.

1. *Low Voltage.*—With this method the type of x-ray transformer employed in diagnostic x-ray work, capable of from 100 to 140 k. v., is used. With a filter of at least one-half millimeter of copper, together with proper focal skin distance, deep therapy may be simulated, but with a machine of this output it is necessary to prolong the treatment. If lighter filter is used the skin is apt to be damaged. Too much treatment is often given to the skin and too little to the tumor and ovaries. It is from the haphazard method used by some general practitioners and radiologists doing diagnostic x-ray work on fibroid cases at spare times that most of the harm and unsatisfactory results from radiation treatment are obtained. Some of the earlier cases in our series were treated by the low voltage method, but we have long since discontinued its use. With the present-day availability of the deep therapy apparatus there is no excuse for the use of the smaller type machines in the treatment of uterine fibromyomata.

2. *High Voltage.*—The high voltage or deep therapy method is practiced with a transformer capable of producing at least 200 k. v., and at least one-half millimeter of copper filter is used. With this method there is absolutely no danger of immediate or remote skin or tissue injury; not even a skin reaction is produced, inasmuch as doses much below the skin erythema dose are used. By this means the treatment can be given quickly and accurately. This is the method of choice in the larger fibroids; used alone or in combination with radium.

3. *Radium.*—The use of radium is confined chiefly to the smaller fibroids. One of the important advantages of the radium is that the dosage may be exactly determined. It is also sometimes desirable to have the direct action on the irritated or suspicious cervical tissue.

4. *Radium With X-Ray.*—The combined radium and deep therapy x-ray is undoubtedly the method of choice in the great majority of cases. By using both agents small doses of each may be administered so that any danger from either element is absolutely eliminated. By the combined method both the direct action on the tumor cells by the radium and the indirect action on the ovaries by the x-ray may be obtained. It

is believed that the reduction of the size of fibromyomata takes place both from the direct action of the radiation on the tissue cells of the growth and from the action on the graafian follicle layer of the ovary. Often when x-ray is used alone the menstrual function is checked by its action on the ovary without very marked change occurring in the size of the tumor mass. If the action of the radium is added, the reduction of the size of the growth is more certain on account of its more direct effect on the tumor cells. The atrophy of mucous glands of the cervix by radium is an added precaution against later development of carcinoma. Also, with the intra-uterine use of radium, curettement is usually performed, which makes accurate diagnosis more certain. We believe that anyone attempting radiation treatment of uterine fibromyomata should be equipped with both radium and x-ray, and be familiar with the use of each agent.

REVIEW OF RESULTS OF TREATMENT

Our office records show that more than twenty years ago definite attempts were made by one of us (Soiland) in the treatment of uterine fibroids by radiation. There were enough good results obtained to demonstrate the fact that this method of treatment had merit, and that it only depended upon the proper knowledge and understanding of the agencies with which we were working to be rendered more effective.

From about the year 1902 to 1920 a great number of fibroid patients were treated by more or less scientific radiation, probably less than we were then willing to admit, but no attempt has been made to obtain any statistical data from this number on account of our unreliable technique, as well as the fact that it would be impossible to trace a sufficient number of these early cases to make any logical statements of end-results.

As the years advanced, however, it became evident that the method was right, and that a great many women were being relieved of serious conditions which previously could only be approached by surgery.

The study of cases which we present in this article begins with cases treated in 1921. Since this time radiation technique has been better standardized, apparatus more scientific, and consequently results more uniform. We have included in this series only cases where there was evidence of a definite fibroid growth in the uterus. A large number of cases of menorrhagia or benign bleeding, without definite demonstrable pathology of the uterus, have been excluded.

The appended tables are a review of the 604 cases of uterine fibromyomata referred to in this article.

Table 1.—*Numbers and Classes*

1. 604 cases treated from 1921 to 1926.
2. 562 cases traced. 42 cases untraced.
3. Age: Oldest 63.
   Youngest 20.
   Average age 43.2 years.
   53 cases between ages of 20–35.
   113 cases between ages of 35–40.
4. Married: 515. Single: 47.
   (Only 8 of the single cases between ages of 20–35.)
5. Married cases without children: 185.
6. Cases showing marked anemia: 78.
   22 cases less than 40 per cent hemoglobin.
   12 cases less than 25 per cent hemoglobin.
   (One case of 18 per cent hemoglobin died four weeks after last treatment.)

Table 2.—*Symptoms*

1. Menorrhagia	320 cases (56.9 %)
2. Pressure	11 cases (1.9 %)
3. Dysmenorrhea	5 cases (.83%)
4. Menorrhagia and metrorrhagia	125 cases (22.29%)
5. Menorrhagia and pressure	88 cases (15.68%)
6. Menorrhagia and dysmenorrhea	13 cases (2.4 %)

GENERAL SUMMARY OF THE FIVE HUNDRED AND SIXTY-TWO CASES, TRACED

The tables are self-explanatory, but a few additional facts may be mentioned.

In five cases in younger women with small fibroids who gave dysmenorrhea as their only symptom and had a return of menstruation after the treatment, four were found to be entirely relieved of the dysmenorrhea.

In only one case of the entire series was pregnancy associated with the fibroid condition. This case, with a subserous fibroid, was in the second month of pregnancy when treated and miscarried six weeks after the last deep therapy x-ray treatment. She had a four-plus Wassermann reaction and had miscarried three times previously.

In the majority of the cases where the tumor was still at least 50 per cent of its former size, the patients were treated in the years 1924, 1925, and 1926. Very few of the cases treated in the years 1921, 1922, and 1923 showed so much enlargement; apparently it takes some time for the complete disappearance of the tumor mass. We believe that if the cases were all studied five years

Table 3—Part One.—*Change in Size of Tumor after Radiation*

A. Tumors larger than four months pregnancy. 69 cases. (6 cases were operated later.)

	Radium (3 cases)	High Voltage X-ray (39 cases)	Radium combined with high voltage X-ray (27 cases)	Total 69
1. Very little change in size of growth.		4 (10.2%)	2 (7.4%)	6 (8.7%)
2. At least 50% reduction in growth.		10 (25.7%)	4 (14.8%)	14 (20.3%)
3. Uterus still slightly enlarged.		13 (33.3%)	6 (22.2%)	19 (27.5%)
4. Growth completely disappeared.	3 (100%)	12 (30.8%)	15 (55.6%)	30 (43.5%)

TABLE 3—PART TWO.—*Change in Size of Tumor after Radiation*

B. Tumors not larger than four months pregnnancy. 476 cases. (11 cases were operated later.)

	Low voltage X-ray 30 cases	Radium 154 Cases	High voltage X-ray (155 cases)	Radium combined with high voltage X-ray (137 cases)	Total 476
1. Very little change in size of growth.	1 (3.3%)		2 (1.3%)		3 (.64%)
2. At least 50% reduction in size of growth.	2 (6.7%)		11 (7.1%)	2 (1.4%)	15 (3.15%)
3. Uterus still slightly enlarged.	5 (16.7%)	13 (8.5%)	27 (17.4%)	20 (14.7%)	65 (13.6%)
4. Growth completely disappeared.	22 (73.3%)	141 (91.5%)	115 (74.2%)	115 (83.9%)	393 (82.6%)

after treatment, instead of only two years in some instances, it would be found that the greater percentage of the larger tumors would be completely reduced in size.

Bleeding continued in ten cases, necessitating a hysterectomy. Six (1.06 per cent) of these proved to be malignant; carcinoma of the fundus being found (three past fifty-three years of age).

Four cases were operated, two before treatments were completed, and two in less than three weeks after treatment, not allowing sufficient time to elapse to judge the effect of the radiation. In none of these cases was there an urgent indication for operation.

So in the entire series of 562 cases only thirteen (2.3 per cent) actually failed to respond to treatment, although seventeen (3.02 per cent) went to operation; the other 545 cases, or 96.9 per cent, are clinically well.

CONCLUSIONS

1. Combined radium and deep x-ray therapy is the best type of radiation treatment in the majority of cases.
2. Radiation therapy is practically specific in controlling that type of hemorrhage which is due to uterine fibromyomata.
3. The majority of fibromyomata larger than a four months' pregnancy may be rendered symptomless by radiation.
4. Radiation is the treatment of choice in fibromyomata not larger than a four months' pregnancy.

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DISCUSSION

CLARENCE G. TOLAND, M. D. (1930 Wilshire Boulevard, Los Angeles).—All cases of fibromyomata should be thoroughly studied, as to size, accompanying inflammation, if any, the amount of bleeding, and the general condition of the patient, before any advice is given as to the kind of treatment to be used, whether surgery, radium, or x-ray.

Our experience has taught us that if the fibroid is not larger than that of a three to four months' pregnancy, is soft, not pedunculated and bleeding, that the use of radium and x-ray treatments will be very satisfactory. It saves the patient the terrors of an operation, possible complications which might arise from the operation, such as infection, obstruction, and postoperative hernia.

We believe that uterine fibroids associated with carcinoma of the fundus of the uterus should always be operated upon, as it is a known fact that carcinoma in the body of the uterus is more amenable to surgical treatment than carcinoma in any other part of the body. Also that it gives much better curative results than the use of radium or x-ray.

From the diagnosis arrived at from the history and diagnostic curettement (if necessary) we are then able to properly advise our patients as to the best type of treatment.

If, in the late menopausal years, we find small fibroids accompanied by a possible carcinoma, we feel surgery is the proper procedure without a curettement for diagnostic purposes. We feel that such a curettement is dangerous from the point of view of infection and setting free in the circulation of carcinomatous cells.

L. A. EMGE, M. D. (2000 Van Ness Avenue, San Francisco).—The interesting survey presented by the authors brings out again the important point that the successful treatment of uterine fibroids by radiation depends entirely upon proper selection. Quite the same holds true of surgery. Each method has its definite place. After the age of thirty-five, radiation is often preferable to surgery. I believe that radiation should have the second choice under this age, for the

TABLE 4.—*Effect of Radiation Upon Menstruation*

(Patients under forty years of age)

	A. Large fibroids (larger than four months pregnancy)		B. Small fibroids (not larger than four months pregnancy)	
EFFECT	AGE		AGE	
	20 to 35 (2 cases)	35 to 40 (16 cases)	20 to 35 (51 cases)	35 to 40 (97 cases)
1. Complete menopause[1]	2 (100%)	13 (81.3%)	23 (45.3%)	95 (97.94%)
2. Temporary amenorrhea with return of normal menstruation[2]		3 (18.7%)	28 (54.7%). No case in this group has gone to surgery.	2 (2.06%)

[1] Three cases of pulmonary tuberculosis making permanent menopause desirable.

[2] Three cases from this group later became pregnant, two with normal children, the other case having twins, one normal and the other stillborn.

simple reason that an artificial menopause at that time of life is not always advisable. Neither the psychic make-up of many women—or that of their husbands—takes kindly to a sudden disturbance of endocrine functions. The sex impulse does disappear in certain individuals. Whether this follows the disappearance of the female sex hormone, which may be due to the destruction of the follicular apparatus in certain instances or is due to the marked reduction of the pelvic venous circulation, I am not prepared to say. The patient should have a word in this matter, especially if subject to radiophobia.

There is no doubt a place for myomectomy in the case of solitary tumors. If the patient is desirous of children the question of choice should rest with her or her husband, even if the percentage of ultimate success is rather low, as long as the facts are openly discussed.

Large tumors producing pressure or toxic symptoms from central degeneration are best treated by surgery. The reduction of these tumors is very slow and pressure symptoms are not speedily relieved. Hence, the patient easily becomes restless. Where toxic symptoms exist they are likely to become intensified. I add to this group large calcareous tumors which do not respond well to radiation. If in doubt as to the existence of such a condition a radiologic investigation will be most helpful. I agree that in extreme anemias radiation should be the matter of choice as an expedient for bleeding, regardless of the size or location of the tumor. But where anemias are due to protein intoxications and not due to bleeding, surgery preceded and followed by transfusion is preferable. It is not a question of enthusiasm for one or the other method, but one of proper correlation of all factors involved. The best method will always be that which serves the patient best. Judging from this report, I believe that the authors have fulfilled this most essential requirement admirably.

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William Henry Gilbert, M. D. (746 Francisco Street, Los Angeles).—This paper on radiation treatment of uterine fibromyomata has added to our knowledge of treatment. It has not been long since there was dispute between gynecologists and radiologists as to the best treatment for this condition, one group contending that all cases were surgical, the other believing that many cases were best treated by radiation. This attitude is no longer so much in evidence. The conscientious physician allots all patients to the

Table 5.—*Patients Going to Later Operation*

AGE	SYMPTOMS AND DESCRIPTION OF TUMOR	METHOD OF TREATMENT	INDICATION FOR OPERATION	FINDINGS OF OPERATION
Case 1 46	Menorrhagia and metrorrhagia 6x10 cm. submucous fibroid protruding from cervix	Radium and high voltage x-ray	Continued bleeding.	Mass reduced in size.
Case 2 45	Menorrhagia and pressure; uterus nodular enlarged 2x	Radium	Continued bleeding.	No malignancy found.
Case 3 47	Menorrhagia and metrorrhagia; 4 cm. wide nodule on ant. wall	Radium curettement negative	Continued bleeding for one year.	Carcinoma, fundus found.
Case 4 44	Menorrhagia; uterus size three months pregnancy	Low voltage x-ray	Operated three weeks after last x-ray treatment.	Intramural fibroid found.
Case 5 48	Menorrhagia, uterus nodular enlarged three times	Radium and high voltage x-ray	Bleeding continued one year at irregular intervals.	Submucous fibroid size of walnut found.
Case 6 34	Menorrhagia and metrorrhagia, uterus enlarged two times suspended to abdominal wall	Radium and high voltage x-ray	Bearing down sensation, feeling of pressure.	5 cm. fibroid, partly calcified, found.
Case 7 36	Pressure lower abdomen; size five months pregnancy	Radium and high voltage x-ray	Pressure remained.	Multiple fibroids found.
Case 8 44	Menorrhagia; size four months pregnancy	High voltage x-ray	Operated two weeks after last treatment upon advice of surgeon. No indication.	Uncomplicated fibroid found.
Case 9 53	Menorrhagia and metrorrhagia; uterus nodular, slightly enlarged	Radium	Continued bleeding.	Carcinoma, fundus found.
Case 10 39	Menorrhagia, size five months pregnancy	High voltage x-ray	Operated ten days after last x-ray treatment. No apparent indication.	Uncomplicated fibroid found.
Case 11 35	Menorrhagia, tumor size five months pregnancy	High voltage x-ray	Operated 2 wks. after last treat. upon advice of surg. No indications from hist.	Hysterectomy, uncomplicated fibroid found.
Case 12 63	Pressure, metrorrhagia	High voltage x-ray	Bleeding and pressure continued.	Multiple fibroids, intraligamentary ovarian cyst found.
Case 13 53	Menorrhagia and metrorrhagia, uterus nodular, enlarged three times	High voltage x-ray	Bleeding continued.	Carcinoma, fundus hysterectomy.
Case 14 38	Menorrhagia and metrorrhagia, tumor size of five months pregnancy	High voltage x-ray	Bleeding continued.	Hysterectomy, four months later showed carcinoma.
Case 15 46	Menorrhagia and metrorrhagia, uterus enlarged two times and nodular	Radium and high voltage x-ray	Bleeding continued.	Carcinoma of fundus found.
Case 16 43	Menorrhagia and pressure, tumor size five months pregnancy	Low voltage x-ray	Operated before treatments were completed.	Uncomplicated fibroid tumor.
Case 17 63	Metrorrhagia, menopause nine year ago, uterus enlarged two times	Radium	Bleeding continued.	Carcinoma, fundus found.

therapeutic department which best suits the individual case. For several years, following the custom of gynecologists in Europe, my office has been equipped with deep x-ray therapy and radium apparatus, to be used as a therapeutic adjunct. I am satisfied that a large number of these patients are best treated by radiation. While the operation of supracervical amputation has a very low mortality the fact remains that an occasional death is a factor against it. From an economic standpoint, the expense of radiation therapy is about the same, with the exception that the hospital and nurse expenses are eliminated. In addition, the patient treated with radiation loses no time from her household duties, experiences no pain, and the mortality rate is practically nil. The secret of success lies in the proper selection of the method of treatment. In the surgical group, I include all cases where the size of the fibromyoma is larger than the size of a four months' pregnancy, pedunculated types, those with a calcareous degeneration, and cases showing positive evidence of infected uterine adnexa. Those that have decided pressure sumptoms I usually treat by radiation prior to operation, in order to relieve the pressure by reducing the size of the growth. The lacerated and eroded cervix present in women possessing fibroids is always treated with the actual cautery, whether the case is handled radiologically or surgically. The diseased cervix is always a factor to be considered and should never be overlooked. I use radiation in all cases with decided bleeding, excepting the submucous type. The hemorrhage is controlled by radiation, and transfusion is then made whether the case be surgical or radiological. The addition of fresh blood to the partially exsanguinated woman is of tremendous help in raising the vitality of the patient. Frank Lynch has called our attention to cocxistence of goiter with fibroids. The exact cause and relationship of these conditions is not definitely known. To my own satisfaction, I have demonstrated on several occasions that in the treatment of fibroids, radiation, especially the x-ray, not only cures the fibroid but decidedly benefits the goiter. I have seen the metabolism drop and the goiter shrink after the treatment of fibroids by x-ray therapy.

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Doctor Costolow (closing).—I am especially glad to have Doctor Toland discuss our paper, as he has referred about one-fifth of this entire series of cases to us for treatment and consequently knows personally of the good results obtained in a large number of the cases.

Doctor Emge's point regarding radiation before the age of thirty-five is well taken. As shown in our tables, only about 12 per cent of our cases were under this age limit and about half of these were treated without the production of a permanent menopause. In our cases, as far as we could ascertain, the complete loss of the sex impulse did not occur. A number of the younger individuals were single and this factor could not be determined. However, the menopausal symptoms in these cases were not different from those occurring after hysterectomy in the average young individual. The age factor is not so important in the fibromyoma problem, as the vast majority of cases do not show symptoms which call for treatment until they have passed the age of thirty-five.

I do not believe the use of the cautery in the cervix, as outlined by Doctor Gilbert, will be necessary if combined radium and x-ray therapy is used. As brought out in our paper, the cervix will become small and atrophic after radium treatment and any inflammatory process will entirely disappear.

We are grateful to the discussers of this paper for their valuable comments, and to the members of the medical profession for the confidence shown in referring this large group of patients to us for treatment. Twenty-six patients of this series were the wives of Southern California physicians.

MENTAL DISTURBANCES IN TUMOR OF THE BRAIN*

REPORT OF CASES

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Discussion *by Charles Lewis Allen, M. D., Los Angeles; Walter F. Schaller, M. D., San Francisco; Jewel Fay, M. D., San Francisco.*

TUMORS of the brain are not infrequently associated with severe mental changes. These mental changes, in some instances, may be so conspicuous as to overshadow the physical signs and obscure the organic nature of the trouble. Such patients, on the assumption that they have functional psychoses, are placed in institutions for the insane, where they may be given only custodial care. The origin of the trouble may be disclosed only at postmortem. Cases of this type have been reported from numerous state hospitals for the insane. According to the United States Census Bureau of the year 1926, on patients in hospitals for mental diseases in 1923,[1] the incidence of brain tumor among these patients was .1 per cent. A larger percentage is reported in Swalm's [2] Index of Postmortems from the State Hospital for the Insane at Harristown, Pennsylvania, where thirty out of 1638 autopsies showed tumors of the brain.

At the psychopathic department of the Los Angeles General Hospital, where patients with mental disturbances are kept only for a short period of observation, on numerous occasions the writer has discovered patients with tumors of the brain. These have promptly been transferred to the neurologic division of the hospital, where appropriate treatment, radical or palliative, has been instituted. It is, of course, unnecessary to dwell on the importance of recognizing these cases early if the best results from surgical treatment are to be obtained. In this communication certain characteristics of the mental manifestations of tumors of the brain which may aid us in determining their true origin will be briefly indicated.

THE IMMEDIATE CAUSE IN THE PRODUCTION OF MENTAL DISTURBANCES IN TUMORS OF THE BRAIN

In his recent book on this subject, Henri Baruk[3] divides these symptoms into two groups.

One group which includes, according to him, mental retardation, disorientation as to time and space, and even fully developed dementia, he attributes to the general intracranial pressure produced by the tumors. These mental changes in this group, he asserts, do not depend upon an involvement of a particular region of the brain.

The other group which includes, according to him, euphoria, childishness, moria (the "Witzelsucht" of the Germans), delusions and hallucinations, simple or complex, are, he states, focal in character, being determined by the particular regions of the brain which are the seat of the tumor. This view, that severe mental disturbances—leaving out of consideration the depression and irri-

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tability which may be associated with a serious ailment anywhere in the body—may be produced by the mere increase in the intracranial pressure, in other words, by the impairment of the functional capacity of the brain as a whole, without indicating an involvement of a particular part of the brain, is one to which I cannot subscribe. The writer is convinced, from personal observation, that the increase in the intracranial pressure may reach a very pronounced degree without producing any noteworthy mental changes. In confirmation of this statement I shall cite here the following two cases:

REPORT OF CASES

Case 1.—Mrs. Clara S., private patient, age thirty-two years, was apparently in perfect health when on December 27, 1925, while at a hotel with her husband in another city, she suddenly had a generalized convulsion. This occurred in the middle of the night, and her husband reports that she bit her tongue, frothed at the mouth, and could not be aroused. She had a similar attack in April 1926, and still another a month later. Following the last attack she noted that her vision was failing and getting progressively worse. She also suffered at irregular intervals from headaches and attacks of nausea. Neurologic examination in December 1927, revealed that she had choked discs of about 4 diopters elevation, a complete homonymous hemianopsia on the right side and slightly increased tendon reflexes on that side. She was referred to Dr. Harvey Cushing, Boston, who on January 28, 1927, removed the major part of a large glioma in the left occipital lobe. This lady is at the present time in excellent condition. Aside from a right homonymous hemianopsia and partial optic atrophy, she shows no evidence of an intracranial disease. Her mental condition has at all times, now as well as before the operation, been entirely normal. She attends social functions, always being careful about her appearance and dress, plays bridge, and is well conversant with the topics of the day.

Case 2.—(L. A. G. H., No. 7423), male, age fifty years, was admitted to the hospital on April 11, 1928. He had been suffering, he states, from progressive failure of vision, headaches, and vomiting since December 1927. Examination revealed that he had choked discs of about 6 diopters, with retinal hemorrhages. He was almost completely blind and could not be tested for hemianopsia. X-ray of his head showed an erosion of the sella with complete destruction of the clinoid processes. Lumbar puncture showed the fluid to be under tremendously increased pressure. No other neurologic findings. Mentally, regardless of the severe intracranial pressure, he was entirely normal. He related his previous history, as well as the history of his present trouble with lucidity, showing no evidence of any impairment of intelligence or memory. Patient died on April 26, 1928, and postmortem revealed a large endothelioma, about the size of a hen's egg, in the right occipital lobe; and extremely dilated ventricles.

The conclusion from these two cases is, I believe, inevitable, first, that intracranial pressure of itself does not produce mental disturbances; and, secondly, that the occipital lobe, while subserving the important function of vision, is not essential for psychic integrity, normal mentality being entirely consistent with almost complete destruction of this lobe.

THE MENTAL DISTURBANCES FROM FOCAL LESIONS OF THE BRAIN

It is the writer's belief that the mental disturbances in tumors of the brain are all focal in origin. And while some of these are insufficiently understood and their mechanism of production unknown, others are well explained on the basis of an impairment of the well-known function of certain parts of the brain, and can be consequently utilized for diagnosis and localization of a lesion. The latter group I would divide into two broad divisions, one comprising what I would designate as the negative phenomena, and the other the positive phenomena. The negative are produced by a suppression of the receptive mechanism of the brain, which is located chiefly in the posterior part of the organ, specifically the temporosphenoidal lobe, and on the left side also the adjacent angular gyrus. The positive are produced by a suppression of the emissive mechanism of the brain, which is located in the anterior part, more specifically, the prefrontal lobe. The latter lobe, being predominantly inhibitory in its action, is associated with hyperactivity of the lower centers which, when freed from restraint, overact, and produce the "positive" type of mental disturbances.

THE MENTAL DISTURBANCES PRODUCED BY LESIONS OF THE "POSTERIOR" PART OF THE BRAIN

These are: first, a mental retardation, a slowing down of all thought processes, which when fully developed is distinctive and pathognomonic, I think, of an involvement of the temporosphenoidal lobe.

This mental retardation is produced by an involvement of this lobe on the right side as well as on the left side. In the latter case, however, it is greatly aggravated, in right-handed people (the right lobe in left-handed people), by the superposition of various manifestations of speech disturbance. The patient suffering from this type of mental disturbance appears to be more or less impermeable to all those external stimuli (auditory, visual, and environmental) which normally generate thought processes. He becomes more or less oblivious to his surroundings including his friends and relatives. He responds to questions and commands only after a prolonged delay—the latent periods of the reaction to a stimulus being greatly exaggerated, and when he does respond, he does this in a slow, hesitating and bewildered manner. His conduct and demeanor show unmistakably that he has lost the capacity both to receive and to transmit thought stimuli. I have discussed this subject, especially the mechanism of its production in a paper entitled "Cerebellar Phenomena in Lesions of the Temporal Lobe" which was published in the June 1928 issue of the *Archives of Neurology and Psychiatry,* so will not dilate on it at the present time. I will state, however, that I have in several instances localized correctly tumors in the temporosphenoidal lobe, a so-called "silent area" of the brain, by the presence of this type of mental disturbance in the patient and, in one case, which was thought to have been an

abscess of this lobe, correctly excluded a lesion of this region by the absence of this phenomenon.

A more severe type of mental disturbance resulting from a suppression of the receptive mechanism of the brain is agnosia. The patient suffering from a severe type of this disturbance may be said to be completely impervious to all outside influences which call forth brain activity. His condition may even simulate coma or catatonic stupor, from which it differs, however, in certain essential characteristics. As agnosia is produced by a lesion of the angular gyrus of the left side, its recognition is of great importance for the localization of the lesion. This is illustrated by the following case:

Case 3.—M. W. (L. A. G. H., No. 285412), male, age forty-one years, was admitted to the hospital on January 25, 1928, with a diagnosis of chronic otitis media and mastoiditis on the left side. Four days later a mastoidectomy was done, following which he began to suffer from severe headaches and rigidity of the neck. I examined him on January 31, 1928. He was mumbling now and then to himself, but did not respond to any kind of visual or auditory stimuli. He did not follow with his eyes a light, nor did he turn his head when a sound was made near him. He responded to skin stimuli only when these were of much intensity. Close inspection revealed, however, a marked difference between the appearance of this patient and the patient in coma. The patient in coma is toxic, and presents an anxious, pinched, distressful appearance and, when sufficiently awake to utter sounds, he groans. He exhibits no sign of being bewildered or puzzled. The eyelids of the patient in coma are generally in partial ptosis from depression of sympathetic tone. Our patient, on the other hand, presented no such appearance. He showed no evidence of much distress, and he kept his eyes open, looking in a sort of questioning manner in all directions. His appearance in this respect differed also from that of the patient in a catatonic stupor, a condition which appears to be allied to negativism and is produced by an inflexible inhibition of all motor activity. The catatonic patient does not, consequently, look about him in the manner of our patient. This, in conjunction with the clinical evidence that the patient was suffering from a cerebral abscess (considerable elevation of the discs, cervical rigidity, slow pulse, spinal fluid under increased pressure with a cell count of 580, 88 per cent of which were polymorphonuclear leukocytes) led me to conclude that the patient was suffering from agnosia, and that the abscess was situated in the angular gyrus on the left side. The patient died, and the diagnosis was confirmed by postmortem.

MENTAL DISTURBANCES PRODUCED BY INVOLVEMENT OF THE "ANTERIOR" PART OF THE BRAIN

An essential faculty of the frontal part of the brain is inhibition of the subordinate centers. This is true not only of the rolandic area of the motor cortex, which, as is well known, exerts an inhibitory effect on the anterior horn cells of the spinal cord, but also of the entire prefrontal area. This was shown by Fano [4] in his studies on the dog concerning the reaction time of the limbs in response to stimuli before and after ablation of this part of the brain. The incessant progression movements of Goltz's dog, following removal of the cerebral cortex, is to be undoubtedly attributed to removal of this area. The mental disturbances resulting from tumors of the frontal lobe are characterized, therefore, by evidence of unrestrained and unregulated activity of the subordinate centers. This manifests itself in states of excitation, deliria and even maniacal outbursts. It occasionally manifests itself in a state of euphoria in which the patient experiences an uncontrolled or exaggerated sense of well-being, simulating in this respect the mental state of general paralysis.

Another mental disturbance which has been described as characteristic of tumors of the frontal lobe is a sort of facetiousness or a childish propensity to jest ("Witzelsucht"). This mental disturbance has been described by Oppenheim, Bruns, and others. Personally I have never seen it in tumors of the frontal lobe, and the only case which in my experience presented this symptom, was a woman, age fifty-two years, with a tumor of the cerebellopontile angle.

Case 4.—(L. A. G. H., No. 244200) was admitted to the hospital on March 9, 1926. Patient had been suffering with progressive failure of vision and ataxia of the arms and legs for two years. At the time of the examination she was unable to stand or walk, and was almost completely deaf and blind. She was, however, regardless of her complete invalidism, in an unusually cheerful frame of mind, and was jesting with the nurses and the other patients, so much so, she was looked upon by everyone as a great source of amusement. The patient, postmortem showed, had a large cerebellopontile angle tumor.

HALLUCINATIONS

Another manifestation of mental disturbance met with in tumors of the brain are visual hallucinations, especially the elaborated type. Hallucinations of this type from an organic lesion of the brain were first described by Hughlings Jackson [5] in a case of a tumor of the temporosphenoidal lobe. His patient "saw a little woman actively engaged in cooking." Foster Kennedy in his paper on tumors of the temporosphenoidal lobe [6] also reports a case in which the patient "saw a strange bad woman, clad in rags." More recently cases with visual hallucinations have been reported from Cushing's clinic. I have personally seen two cases with hallucinations of this type, and both of these, postmortem showed, had tumors of the cerebellum. The history of these cases is briefly as follows:

Case 5.—Nellie M. (L. A. G. H., No. 253354), age forty-four years, was admitted to the psychopathic department of the General Hospital on August 26, 1926. Husband reports that five weeks prior to her admission she began to suffer from "weakness" of the legs, and three weeks later lost her vision. She soon afterward developed the hallucination that Chinese men and women were standing behind her back. I was called to examine her on September 15, 1926. I found her fundi to be atrophic, the atrophy being of the secondary type. She showed a bilateral Babinski and diminished deep reflexes. Abdominal reflexes were present. The examination could not be completed, as she was continually harassed by her hallucination, which made her extremely irritable. Patient died on October 12, 1926, and necropsy showed that she had a well circumscribed tumor of the vermis, about an inch in diameter, a little more to the right.

Case 6.—Another very similar case came under my observation recently. The patient (L. A. G. H., No. 282755), a woman, age fifty-six, had been suffering from headaches and unsteadiness in walking for the past two years. She had a bilateral choked disc with partial atrophy. She had the hallucination that three

masked soldiers were standing back of her bed, and, like the first, was extremely irritable and quarrelsome. Operation in this case disclosed a large tumor of the right hemisphere of the cerebellum. Patient died, but necropsy was refused.

SUMMARY

The cases here reported show:

1. That the increase in intracranial pressure does not of itself produce the mental disturbances that are associated with tumors of the brain.

2. That the mental disturbances associated with such lesions are to be regarded as focal phenomena, being produced by an impairment of specific function in different regions of the brain.

3. That the occipital lobe plays but little, if any, part in the psychic integrity of the individual, normal mentality being compatible with almost complete destruction of this lobe.

4. That lesions of the temporal lobe on either side of the brain are associated with a characteristic type of mental disturbance which manifests itself in an incapacity to receive mental stimuli and a slowing down of all thought processes.

5. That lesions of the frontal lobe produce mental disturbances which appear to be mainly the result of a loss of inhibition by the higher centers and overactivity of the subordinate parts of the brain.

6. That visual hallucination of the elaborated type may be associated with tumors of the cerebellum. This may possibly be explained as the result of pressure by the tumor on the corpora quadrigemina and geniculate bodies.

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DISCUSSION

Charles Lewis Allen, M. D. (523 West Sixth Street, Los Angeles).—Since the present tendency is to regard the mental processes as dependent upon the activity of the brain as a whole and liable to be disturbed by anything interfering with the orderly initiation, course and integration of these processes, it is understandable that lesions anywhere in it may be translated into mental disturbances.

Probably there are no strictly "silent regions" of the brain, though we are acquainted with the language of only a limited portion of them. When the lesion involves the speech polygon we have at our disposal the accepted data of aphasia.

The effect of increased intracranial pressure, of changes in the circulation of blood, lymph and cerebrospinal fluid, also toxic substances arising in the morbid growth, have been accused as pathological factors.

As to why the local effects of the tumor and the general factors mentioned cause mental disturbances in one case and not in another, we have no exact knowledge.

Even large tumors have given no characteristic symptoms, but were discovered at the autopsy.

These questions present themselves: on the one hand, are there mental disturbances sufficiently characteristic to point in an individual case to brain tumor? On the other, if a tumor has been diagnosed on neurological grounds, can we rely upon the nature of the mental symptoms as an aid to its correct localization?

In cases presenting the picture of organic dementia, general paresis and vascular disease being excluded, brain tumor must be considered. The ophthalmoscope may help here.

A picture not infrequent is that of general mental slowing down and inability to carry out ordinary duties, with possibly occasional periods of confusion, but on talking to the patient he can be roused, is surprisingly well oriented, can receive and coördinate impressions, his memory is fairly good, he expresses no delusions, but shows little spontaneity and if left to himself dallies helplessly around.

This picture has been present in several cases of frontal tumor, but has been observed also in lesions of other parts of the brain.

The mental symptoms of increased intracranial pressure when present, chiefly concern disturbances of consciousness.

The value of mental disturbances as localizing symptoms is largely nullified by their variability and is opposed to prevailing psychological conceptions.

In occipital lesions involving the visual apparatus, psychic activity may be affected, but this involvement is usually translated into neurological symptoms.

In temporal lesions, impairment of hearing and so of perception and conception may well explain mental slowing, which, however, is less characteristic than speech disturbances in left-sided tumors.

The frontal lobe picture is suggestive but by no means reliable as a localizing symptom.

The mechanism of hallucination production involves various factors and is far from satisfactorily explained. The value of visual hallucinations as a localizing sign may well be regarded with skepticism. These are present in a vast number of cases in which there is no question of tumor.

Walter F. Schaller, M. D. (909 Hyde Street, San Francisco).—The opinion of Doctor Meyers that general intracranial pressure does not produce mental alterations is, I believe, contrary to the generally accepted ideas on this subject; however, his Case 1 and Case 2 of verified occipital lobe tumor with an intact mentality and a high grade of intracranial pressure, as indicated by disc changes, very significantly confirm his contention. The mental picture commonly met with of lethargy, delayed mental reaction time, lack of concentration and attention has always been associated in my mind with brain compression from an internal hydrocephalus, or brain pressure.

In the general consideration of this subject the individual resistance and response may well be a varying factor, as, say, in intracranial pressure, where the effect may be marked on one patient and negligible in another. Further, a slowly growing endothelioma may be quite different in its effects from the active metabolic and irritating nature of a tumor of different type. As an example of this particular point, I feel that Case 3 of the paper is not so interpretative as Case 1 and Case 2. By such case reports as Doctor Meyers has given us, I believe that it will be ultimately possible in a large series to procure information as to abnormal mental states caused by focal brain tumors. Such brains should be macroscopically

serially sectioned, and, if possible, photographed for accurate localization and future reference.

The problem of mental changes in brain tumor is an interesting one and deserves the emphasis placed upon it. It has been a subject which has interested me, and Doctor Meyers' paper will be stimulating to further interest and attention. The most significant cases for such an investigation are preferably to be selected from among those which are focal in character, uncomplicated by internal hydrocephalus, and fairly rapidly growing, so as not to be compensated by other parts of the brain. Mental disturbances might well be classified further according to whether they were of the nature of dementia, and those with disturbed idea associations, as of psychoses. Tumors of the corpus callosum disturbing this large associated bundle between the hemispheres characteristically cause a marked impairment of cerebration. Recently I observed a case of multiple spongioblastoma in which the cerebration was so disintegrated that the patient was completely disoriented, was unable to perform even habitual and simple acts, did not recognize close friends or relatives. Such lesions mean that important association pathways are destroyed. We have observed conduct disorders in cases of frontal and prefrontal lobe tumor, alterations in the feeling tone (including typical Witzelsucht), errors of judgment, and moral lapses, and it is our impression that such pictures are distinctly more frequent here than in tumors elsewhere, including the temporosphenoidal lobe. In this latter locality I have seen the peculiar psychologic state elsewhere described of a feeling of unreality and of fear, associated with hallucinations of taste or smell, and on the left side paraphasic defects and amnestic aphasia for nouns, in right-handed individuals. Extension of tumors in this locality will produce visual hallucinations by extension or pressure on the optic radiations. Auditory hallucinosis can conceivably be produced by involvement of the afferent pathways or cortical auditory representation, as, for example, a tumor involving Heschl's convolution.

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Jewel Fay, M. D. (350 Post Street, San Francisco). Doctor Meyers' article is interesting and stimulates further inquiry into the subject of mental symptoms coincident with brain tumors. Several inquiries suggest themselves:

1. Can we be definitely certain that the mental symptoms are directly connected with the neoplasm? This means the elimination of all varieties of bacterial and other forms of toxemias not caused in any way by the neoplasm. Infections, disturbances of metabolism, alcohol, drugs, etc., need to be considered.

2. Are the mental symptoms due largely to the general effect of the tumor growth, especially to the more or less rapid and serious increase of intracranial pressure? The choked disc is not always present. Kleist reports finding only two cases of choked disc in a series of eight cases. Oppenheim states that choked disc is never present in 10 to 20 per cent of cases. This needs to be considered, also—that the so-called general symptoms are always based upon intracranial pressure; yet neither the intensity or the duration of the pressure explains the variety and intensity of psychic disturbances. Doctor Schaller has already pointed out the variation in the individual resisting capacity of brain tissues. Also in a slow-growing tumor and apparently especially in old people (Redlich), mental symptoms may be almost imperceptible, the pressure being well compensated for.

3. The localizing value of mental symptoms is also very questionable. All authorities appear to agree that frontal tumors are most likely to produce mental disturbances; however, the type of disturbance means comparatively little. Optic hallucinations have been found in tumors variously located in the brain. Courville reports six cases of frontal lobe tumors which had definite auditory hallucinations. Hallucinations, confusion, delirium, and mental dullness are not only present in tumors of varying locations, but also in toxic states already mentioned. This is especially true of Korsakow's syndrome. The more or less pronounced impairment in perception and elaboration of new impressions is so generally present, and may easily be due to a number of different causes, so that its localizing value appears of little importance.

4. Another element needs consideration. The pre-existing reaction type (extravert, introvert, paranoid, hysterical, etc.), may impress itself sufficiently upon the developing mental disturbances of a brain tumor no matter where located. Further, the tumor itself may liberate, as other brain trauma are capable of doing, a latent actual psychosis and the patient will then develop manic, depressive, paranoid, catatonic, hysterical or other manifestations generally, in addition to the general and perhaps locally caused mental symptomatology.

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Doctor Meyers (closing).—It is undoubtedly true that brain tumors may be associated with psychic disturbances of uncertain interpretation which cannot, in the present state of our knowledge, be utilized for localization of the lesion. However, it is to be borne in mind that mental processes, like all other brain activities, are from the physiological standpoint, divisible into two broad classes, one of which is dependent upon the receiving mechanism of the brain, the other upon the transmitting mechanism. It is my contention that the mental disturbances resulting from a breakdown of either of these mechanisms are indicative of an involvement of definite parts of the brain.

Doctor Schaller states that lack of attention and retarded cerebration are frequently the result of hydrocephalus. This is undeniably true. This fact does not, however, exclude the temporosphenoidal lobe—which is, of course, also affected by the hydrocephalus—from being the dominant factor in the production of these phenomena.

LEUKOPLAKIA OF THE KIDNEY PELVIS*

REPORT OF CASE

By Adolph A. Kutzmann, M. D.
Los Angeles

Discussion *by Thomas E. Gibson, M. D., San Francisco; Frank Hinman, M. D., San Francisco; A. J. Scholl, M. D., Los Angeles; Robert V. Day, M. D., Los Angeles.*

LEUKOPLAKIA of the urinary tract has been of increasing interest to American urologists in recent years. Following the epochal contributions of Kretschmer in 1920 and Hinman, Kutzmann and Gibson in 1924, a considerable number of other observations have been recorded (Briggs and Maxwell, Hennessey, Wilhelmi, and E. L. Young). The European authors have also written extensively on the subject (Chaudiano, Klug, Von Borzia, Jura, and Karo).

Leukoplakia of the kidney occurs more frequently than is thought, but has probably been overlooked through the laxity in observation of genito-urinary pathology. Up to the present time sixty-four proven cases have been recorded, inclusive of the case herein given, twenty-two of these having been reported since 1923. The disease has a special significance because of its possible relation to the squamous cell carcinoma. Noteworthy contributions stressing this point have appeared from time to time (Hinman and Gibson, Scholl, and Kretschmer).

Leukoplakia of the urinary tract has long been of interest to the pathologist because of its ob-

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scure etiology and pathogenesis. It is known that the urinary tract embryologically has a mesodermal and entodermal origin, yet a leukoplakial process is a structure simulating the skin, an ectodermal derivative. Because of its relative rarity, its relation to malignancy, and its obscure etiology, it is essential to continue to collect further data and disseminate a more general knowledge so that the condition may be more often recognized.

REPORT OF CASE

History.—Female, Mexican housewife, age twenty-six years, referred by Dr. L. C. Audrain. Complaints were: (1) Marked frequency and burning on urination; (2) soreness across lower abdomen; (3) left lumbar pain. The family history was irrelevant. History of measles, chickenpox, and smallpox. Venereal disease denied. Menstrual history normal. Seven full-term pregnancies with no miscarriages. Habits good.

Present Illness.—This began three years ago with pain in the left lumbar region, and frequency of urination. Four months ago tenderness across the lower abdomen developed with burning on urination and malaise. At present the patient has a marked frequency, bordering on incontinence. The pains in the left lumbar region and lower abdomen have increased in intensity. There seems to be a sense of difficult urination with severe attacks of burning and occasionally a slight hematuria. There has been a marked loss in weight, but patient does not know how much.

The physical examination showed an emaciated, sick-appearing woman lying in bed, apparently in some distress. Temperature, 99 F.; pulse, 84; respiration, 22; weight, 97 pounds. There was a marked tenderness in the left lumbar region which extended anteriorly and downward. Physical examination was otherwise negative.

Laboratory Data.—Blood examination showed: hemoglobin, 65 per cent; red blood cells, 3,810,000; white blood cells, 11,400; polymorphonuclears, 74 per cent; small lymphocytes, 18 per cent; large lymphocytes, 4 per cent; large mononuclears, 2 per cent.

Urine Examination.—Very cloudy; 1018; light straw-colored; reaction P. H. 7.2; albumin, heavy trace; sugar, none. Microscopic examination showed numerous pus and blood cells; few epithelial cells; no casts.

Phthalein Intramuscular.—First hour, 50 per cent; second hour, 15 per cent. Total, 65 per cent.

Blood Wassermann.—Negative.

Cystoscopic Examination.—The bladder wall showed a very severe and diffuse cystitis; bladder capacity, 30 cc. The vesical neck had a marked bullous edema. Right ureteral orifice negative. Marked ulceration around left orifice. Both ureters were easily catheterized to kidneys. Urine from the right kidney had numerous red blood cells, an occasional white blood cell, no epithelial cells. No casts or organisms. The left kidney urine was very cloudy and blood-tinged. Microscopic study revealed numerous blood and pus cells and Gram-positive cocci. The bladder urine showed a similar picture. No tubercle bacilli were found in any of the specimens. All cultures failed to grow although staphylococci were the predominating organisms in the stained smears. Phthalein intravenously appeared in three and one-half minutes on the right side and returned 32 per cent of the dye in thirty minutes. The left kidney appearance time was five minutes with 14 per cent secreted in thirty minutes. There was no bladder leakage. Pyelographic studies showed a left pyonephrosis.

Diagnosis.—Left pyonephrosis with cystitis and contracted bladder.

Operation.—Because of the patient's marked anemia a blood transfusion was given two days before operation. Left nephrectomy was done, under ethylene-oxygen anesthesia. Uneventful convalescence except for a wound infection, which cleared readily under daily irrigations with Dakin's solution.

Subsequent Course.—Patient was seen six months later (December 1, 1927), by which time she had gained twenty pounds in weight. Felt well and was able to do her housework. Had nocturia every five hours, and a diuria every two to three hours. Remaining signs and symptoms had entirely cleared. Has not returned for further bladder observation.

Gross Pathology.—Specimen consists of a left kidney weighing 190 grams. The surface is very rough, mottled purplish pink. Very irregular in consistency. Upon section there are seen six irregular cavities connected with each other and to the pelvis. The pelvis and cavity-like calices are covered by a whitish, wrinkled, thick, parchment-like membrane. The remainder of the renal parenchyma shows very little differentiation and is swollen in appearance. The capsule strips with difficulty leaving a coarsely scarred surface.

Microscopic Pathology.—Many areas of the kidney have been replaced by inflammatory products composed of small round cells, eosinophils and some leukocytes and connective tissue, in some areas approximating abscess formation. The adjacent kidney tissue shows edema and cloudy swelling. The tubules appear slightly dilated as do some of the glomeruli, while others are quite sclerosed and congested. The blood vessels show marked fibrosis. Everywhere the interstitial connective tissue is increased.

Examination of the pelvic mucosa shows a definite metamorphosis into squamous epithelium similar to the skin. There is a marked chronic inflammatory reaction chiefly of small round cells beneath this process and in some areas infiltrating this layer. The squamous epithelium shows a cornified layer beneath which is a granular layer of cells (keratohyalin granules). Underneath can be seen a well-defined basal layer. Some sections show a tendency toward papillary downgrowth of this layer. The entire picture is that of a well-defined leukoplakia.

Diagnosis.—Chronic pyonephrosis with pelvic leukoplakia.

COMMENT

This case definitely demonstrates a leukoplakia which appeared to be limited to the renal pelvis and calices. It was associated with or complicated by an infection of long duration, a severe pyonephrosis which had practically destroyed the kidney. In all respects this case definitely simulated the various case reports of leukoplakia in the literature. In accord with the present theories of leukoplakial pathogenesis it may be considered as having been due to a severe chronic urinary tract infection.

Pathogenesis.—Leukoplakia may be defined as the formation of patch-like epidermoid areas limited to the mucous membranes in the various parts of the body, especially the buccal and urinary mucous membranes. Morphologically it consists of an epidermization of the squamous epithelium. The occurrence of such an ectodermal structure in organs of the urinary tract which are of mesodermal and entodermal origin has led to many theories. That epidermization of the mucous membranes is not necessarily due to syphilis was brought forth many years ago by Hunter and Babington. Schwimmer (1878) later confirmed this theory, stating in his work on buccal leukoplakia that irritative influences (tobacco) could also be considered as etiologic factors. Posner

(1889) basing his conclusions on Virchow's "Pachydermia Laryngis," in which is given the theory of stimulation (irritation) from a genetic point of view, enhanced the theory still further by stating that it was possible for tissues of mesodermic origin to also be epidermized, citing as an example the vagina. Later experiences and careful observations in pathologic anatomy have tended to break down the older theories of tissue transformation or metaplasia (Askanazy, 1919). The theory seems to have lent itself to more plausible explanation with later observers (Haythorn).

Rokitansky (1861) was the first observer to call attention to leukoplakia in the urinary tract (bladder). Many etiologic factors such as tuberculosis (Beselin, 1885) and syphilis (S. and E. Le Virghi, 1923), have been considered. It has, however, been apparent that most cases could not be explained through these factors, thus leading most authors to adhere to the congenital theory, and especially to the theory of metaplasia.

The congenital theory, fostered especially by Lecène, contended that the process may be due to misplaced cell rests, but this is open to doubt because of the universal association with infection. It would then have to be accepted that the leukoplakia invited infection, but clinical data hardly substantiate this.

The metaplasia theory of Haythorn appears the most logical, and at present is the more widely accepted explanation. Haythorn believes that the mucosa has been destroyed beyond hope of specific regeneration and seeks to protect itself with the best reparative type of cells it can produce in its exhausted condition. There is probably a link between the injury to the basement membrane and tumor growth, in that the irritants and inflammation which destroy them open the way for metaplasia and new growth.

Granting the metaplastic nature, there have been various physiologic and biologic concepts used to explain the process. Hinman and Gibson have promulgated the theory that leukoplakia is a process of protective cornification; that epithelium in general possesses a dual potentiality, not only differentiating and exercising a normal function according to location, but also bringing a protective mechanism into use in a uniform way under certain conditions of irritation. That is, the urinary epithelium changes under certain devastating processes and dons a resistant skin-like coat of cornified squamous epithelium.

Unfortunately experience has shown that metaplastic changes of epithelium to leukoplakia are not physiologic but pathologic, the condition by its presence alone maintaining an incurable state of chronic inflammation and irritation. It will not regress spontaneously even though the primary source be removed, which is usually a calculus or chronic infection, but in time may undergo malignant degeneration similar to that of leukoplakia buccalis, of which 20 per cent of cases become malignant (Aster). Kretschmer has referred to leukoplakia, stone and chronic infection as the universally recognized forerunners of the nonpapillary carcinoma of the kidney pelvis. Hinman and Gibson in a thorough review of the literature concluded that squamous cell carcinoma was definitely on a leukoplakic basis in a great many instances.

Clinical Picture.—Briggs and Maxwell (1926) analyzing eighty reported and personal cases of urinary leukoplakia found the following distribution: vesical, 40; renal, 24; renal and ureteral, 10; ureteral and vesical, 4; renal or ureteral or both, 2. Since the division is almost equal, 44 vesical and 40 renal cases, they believed that it must occur more frequently in the kidney, since the diagnosis in the latter cases could only be made at operation or necropsy, while the vesical cases might be more often diagnosed by cystoscopic examination. There are no pathognomonic signs or symptoms in the diagnosis of renal cases. Bladder cases may under ordinary conditions be definite, showing the irregular plaque-membranous formation, varying in luster from a dirty white to a grayish color, raised from either a normal or infected vesical mucous membrane. The silvery gray luster of the leukoplakic areas causes them to stand out from the surrounding tissues. Close observation will show no blood vessels coursing through these areas. Usually associated pathologic conditions are diagnosed first, the renal leukoplakia being discovered later at operation or necropsy. The most frequent have been hydronephrosis and pyonephrosis; other conditions have been renal calculus and tuberculosis; while some of the rare associated conditions have been orthostatic albuminuria, interstitial nephritis, cystitis cystica, double kidney pelvis, foreign body in kidney pelvis, leukoplakia of the eye, leukoplakia of the diaphragm and Addison's disease.

The outstanding points in the symptomatology are urinary infection and chronicity. Nearly all patients complain of dysuria, burning on urination, urgency and other similar disturbances, which are associated with infection. Hematuria has been noted at times. Lumbar pains and backache, varying from the dull heavy type to a renal colic, can be encountered. The latter has been thought to be due to small leukoplakic plaques moving down the ureter. Careful urologic study is imperative in order to determine the exact condition of the urinary tract and to diagnose the associated condition, the leukoplakic process remaining undiagnosed unless found in the bladder.

Treatment.—The relationship of leukoplakia to malignancy (squamous-celled carcinoma) should always be borne in mind when instituting treatment. Leukoplakia of the kidney should be treated surgically if proven to be unilateral. Since the condition is one of long standing, early diagnosis and treatment through the operation of nephrectomy will save the patient much suffering. Should there be any contraindication to such a radical procedure, palliative treatment through

renal pelvic lavage with 1 to 5 per cent silver nitrate may be instituted.

SUMMARY

1. Leukoplakia of the kidney pelvis is of importance because of its relative rarity, relationship to malignancy and its obscure etiology and pathogenesis.

2. A case of leukoplakia of the kidney is reported.

3. There are two theories concerning the etiology of leukoplakia. Haythorn's theory considers the process to be one of metaplasia, or adaptation by cornification to an inflammatory irritative environment. The second theory is based on misplaced embryonal rests of the primitive ectoderm.

4. The symptomatology is that of the associated urinary condition: a chronic infection upon some definite organic lesion (hydronephrosis, pyonephrosis, calculus).

5. The treatment is nephrectomy where the leukoplakia is confined to one kidney. Palliative treatment in the form of renal pelvic lavage may be used.

1930 Wilshire Boulevard.

DISCUSSION

Thomas E. Gibson, M. D. (641 Flood Building, San Francisco).—Doctor Kutzmann has presented a report of a very characteristic example of leukoplakia of the urinary tract, concluding with a very concise résumé of our present knowledge of the condition. I had the privilege a few years ago of publishing a paper on this subject with Doctors Hinman and Kutzmann. Our attention at that time was called to the condition by a case which presented a transformation of the kidney pelvis exactly resembling a thick piece of wrinkled skin, and the amazing thing about it was that microscopically it really was skin, that is, it presented the characteristic layers, stratum mucosum, granulosum lucidum, and corneum. The granular layer showed the typical keratohyalin granules as seen in the skin. The cells of the rete showed typical intracellular bridges.

Unfortunately there is no way of diagnosing this condition clinically unless one is led to suspect its presence in the kidney by possible coexisting lesions in the bladder which can be seen with the cystoscope. Its presence should always be suspected in cases of refractory pyelonephritis or cystitis, and if one bears it in mind it will probably be more often discovered because undoubtedly it is not so rare as it is generally considered. When present in the kidney, experience has shown that it is futile to attempt to cure the coexisting infection except by radical surgery. Even though leukoplakia is apparently a physiological attempt on the part of nature to deal with chronic irritation of some sort, the result, as Doctor Kutzmann has stated, is not physiological but pathological not only as regards the continuation of infection already present, but also with respect to the possibility of malignant degeneration.

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Frank Hinman, M. D. (384 Post Street, San Francisco).—About a little over twenty cases of leukoplakia of the upper urinary tract have been reported since 1924 and only twice as many cases can be found in all of the previous medical literature. No doubt these sixty-odd cases are but a few of those that have been seen and recognized, but the more frequent reports during the last five years indicate that the condition is being recognized much more frequently now than previously. The condition is not only of interest but of considerable importance. Interest is mainly one of theory as to etiology, importance is both diagnostic and therapeutic. As yet, no satisfactory treatment has been devised and the tendency for an apparently benign condition to become highly malignant in the form of squamous cell carcinoma indicates its importance and seriousness. We have recently had a sixth squamous cell carcinoma of the bladder secondary to a leukoplakia that itself apparently originated because of a chronic proteus vulgaris cystitis. In an early paper in collaboration with Doctor Gibson, "Squamous Cell Carcinoma of the Bladder, a Study of Heterotopic Epidermization, with a Review of the Literature and Report of Cases," the idea was advanced that leukoplakia is not a true metaplasia in the sense that entoderm is transformed to ectoderm, but that the condition is the natural response of bladder mucosa to prolonged irritation by an effort at protection with the result that a skin-like structure is formed similar to the skin covering the body, the first and foremost function of which is protective. It is simple epidermization of the vesical mucosa as a result of irritation. The malignant tendency of the condition in the bladder does not seem to be duplicated in the kidney which rather weakens Gibson's and my idea that squamous cell carcinoma of the bladder is frequently of leukoplakic origin. I can recall but a single case of renal tumor of pelvis or ureter reported on this basis (that of Kichensky, 1901), and leukoplakia of the pelvis and ureter probably occur more frequently than of the bladder since about the same number of cases of each have been reported, and the latter is readily recognized but the former rarely diagnosed. The same incidence of malignancy, if present, would sooner or later be bound to lead to recognition of the association of the two in the kidney. In consideration of treatment I would beg to differ with Doctor Kutzmann by saying that nephrectomy is never indicated *per se*. Bilateral involvement is not uncommon and nephrectomy is performed as treatment of the associated unilateral lesion (calculus pyonephrosis, hydronephrosis, atrophic pyelonephritis, etc.), never of the leukoplakia. Even if one could prove the presence of a unilateral lesion, which would seem possible only by bilateral exploration with our present diagnostic limitations, one would hesitate removal of an otherwise good functioning kidney. Most of these kidneys, however, are badly infected and insufficient functionally, as Case 1 of our series (*Surg. Gyn. Obst.*, October, 1924), but nephrectomy was performed because of infection and insufficiency, not leukoplakia. Follow-up records of these cases are of great importance, and I am sorry I cannot give information here of the results in the two cases reported by us in 1924. Kretschmer's recent report of thirteen cases (*Surg. Gyn. Obst.*, August, 1928), is interesting in respect to associated lesions, as well as the report of three cases in which the condition was confined to the urethra. He states that three of his cases had no associated pathology, which is rather contradictory to our idea of etiology. In Case 3 (urethra) of male, age twenty-eight, there had been pain in the lower quadrant for nine years and there was pus and *B. coli* in the bladder urine. In Case 6 (bladder), male, age twenty, there had been marked urinary disturbance for three years and, according to the patient, pus and blood in the urine all this time. Tubercle bacilli were found in the urine. Patient died and there was no autopsy. I think one might well disagree with Doctor Kretschmer as to there having been associated lesions in all three cases. His records do not prove that leukoplakia preceded the infections that were present and pronounced in all at the time of his examinations.

Doctor Kutzmann's report is quite satisfactory. Complete follow-up records of the course, for many years, of cases reported will go far to answer many questions under dispute.

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A. J. Scholl, M. D. (721 Pacific Mutual Building, Los Angeles).—The subject of squamous-cell changes in the urinary tract is a very interesting one. These changes generally form in response to repeated mechanical trauma or to tedious infections. All parts

of the urinary tract are subject to this proliferation of epithelium to a condition resembling skin. In the renal pelvis small areas of hyalinization and squamous-cell changes are not infrequently seen in hydronephrotic sacs. More extensive epidermoid changes occur in cases of long-standing renal infection, either with or without stones. Long duration of infection is not essential, however, for these changes sometimes result in association with short periods of severe infection. At the Mayo Clinic a nephrectomy was performed in a man aged twenty-six years after only nine months of severe pyelonephritis. The renal pelvis contained a number of raised, wrinkled, grayish white plaques, 1 to 2 centimeters in diameter; histologic examination revealed squamous-cell changes.

Orth, Beselin, Hallé, and Kretschmer have all reported cases of leukoplakia associated with tuberculous pyelitis. Lecène, Klug, and Grauhan attribute the formation of leukoplakia to developmental changes. Richey holds that metaplasia occurs both as a physiologic process and as a result of certain pathologic conditions, the latter involving repeated trauma to a tissue over an extended period of time.

Frequently the same factor which produces the metaplasia in the renal pelvis, urethra and bladder continues its action until malignant changes develop. Albarran holds that most squamous-cell growths are preceded by leukoplakia. Besenbruch reported squamous-cell carcinoma developing in a case of tuberculous pyelitis. Aschner described a case of squamous-cell tumor arising at the ureteral pelvic juncture in association with leukoplakia of the renal pelvis. In one case observed at the Mayo Clinic a squamous-cell carcinoma occurred in one portion of the kidney. In several other parts, especially those surrounding a large calculus, areas of simple leukoplakia were seen. This suggests a close causal relationship.

Doctor Kutzmann's case is a typical one of leukoplakia, and his discussion of the pathology present sums up practically all that is known about the condition. *Per se* leukoplakia, either in the renal pelvis or bladder, is not a serious condition and does not warrant radical curative procedures. On the other hand, it is possibly a premalignant condition and is not infrequently associated with such marked infection and destruction of tissue that surgical interference may be necessary. Occasionally small areas of leukoplakia are observed in the bladder in association with urinary infection. Cleaning up the infection at times also permits the leukoplakial thickening to subside.

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Robert V. Day, M. D. (1102 Wilshire Medical Building, Los Angeles).—Doctor Kutzmann has reported a very interesting case and given us an up-to-date résumé of the subject. These cases of leukoplakia are supposedly extremely rare, but actually are only comparatively so. I feel sure the reason for this is that leukoplakia is practically always just an incident in a patient who is suffering from much graver pathological conditions—really just an occasional by-result in bacterial infections of the urinary tract. If the infection and its underlying lesion is cured the leukoplakia is in most instances at least arrested in its development. There is a whole series of irritative lesions, namely, malakoplakia, cystitis cystica, and trigonitis granulosa—all these in the bladder, urethral polyposis at the bladder neck, and venereal warts externally. Every one of these is associated with and probably entirely due to infection. Kretschmer in his most recent article, reporting thirteen new cases of leukoplakia in the urinary tract, in addition to the three cases he previously reported, states that in three cases there was no associated pathology. Yet, in his accompanying case reports of these, he certainly notes infection and unquestionable pathologic changes. Apropos of its rarity, any condition which has been observed in the urinary tract of sixteen individuals by a single clinician, obviously cannot be so very rare. I personally have seen more than half this number. An evident cause of leukoplakia in the urethra, not mentioned in the literature available, is the use of strong silver nitrate solution as an urethral injection. I have seen three such cases following injections of 1 to 2 per cent silver nitrate solution into the urethra from one to four times weekly in a clinic where this practice was sometimes employed.

It is unfortunate that in the case reports of practically every author certain data of the highest importance are omitted. I refer to precise information concerning ammoniacal urine and the quantitative determination of ammonia by the distillation method when obviously present in noticeable amount; also precise reports regarding the bacterial flora in urine in each case and the type of organism present. Methods of determining this are important. For instance, Doctor Kutzmann in this paper reports no growth on culture, but Gram-positive cocci were plentiful on the stained smear. This is not an infrequent occurrence, the reason supposedly being that formaldehyd or other bactericide used in catheter sterilization, prevented bacterial growth. Contra-wise, growths obtained by culture are apt to be contaminations. Therefore stained smears obtained from the sediment of absolutely fresh urine should always be made in order to check on the culture.

In the growth or lysis of a particular bacterium or a particular type of bacteria, possibly or even probably an irritative toxin is formed. Otherwise why do venereal warts propagate so luxuriantly and why do wound secretions occasionally produce intense superficial irritations of the surrounding skin? It seems entirely reasonable and in keeping with all clinical observation and common sense to believe that in case of the so-called irritative lesions of the urinary tract, much depends not only on the nature of the irritative toxin, but also on the particular reaction of a particular tissue in the occasional individual to a certain toxic substance if and when such toxic substances exist and produce occasional tissue reactions. On the other hand, we so often note the effect of ammoniacal urine on the bladder mucosa and even occasionally on the skin of the abdomen from urinary secretions, when urea-splitting organisms are present. Future reports should supply more careful and detailed bacteriologic data. Most hospital charts, as far as laboratory data are concerned, are cluttered with reports of nonessential facts, and information of the greatest importance is omitted, due usually to ill-chosen requisitions on the laboratory. Moreover urine specimens are let stand for many hours until the whole series for the day are collected, so they may be examined simultaneously. The consequences are that many normal urines become contaminated, resulting in profuse bacterial growth and frequently becoming strongly ammoniacal. Reports on such specimens are then obviously misleading.

The treatment of leukoplakia means the treatment of associated and apparently underlying pathologic conditions. Treatment of the condition *per se* has been found impracticable or unavailing. Further case reports including adequate and essential data may help in positively settling the etiologic question and hence in instituting earlier, more rational and satisfactory treatment.

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Doctor Kutzmann (closing).—The discussions leave practically nothing to be added. Leukoplakia of the urinary tract is of chief interest to the urologist and pathologist because of its obscure etiology and theoretical pathogenesis; its clinical problems of diagnosis and therapy. Its rarity is probably more relative than real, due to the laxity in observation or recognition of the condition. I believe that the statements of Doctor Hinman that the epidermization is protective against chronic irritation and of Doctor Day concerning the irritative toxins of some types of bacteria may prove to be significant in explaining leukoplakic formation in many cases. Briggs and Maxwell noted the various groups of infecting organisms in such cases where there has been identification, but it is such a varied collection that no inference can be drawn; more

accurate and careful bacteriologic studies of the urines in future case reports will be necessary before anything can be said on this phase. We must also take some recognition of its possible malignant tendency. A recent review of the literature discloses sixty-four reported cases of renal pelvic leukoplakia with five squamous-cell carcinomas (Kischensky, 1901; Spiess, 1915; Aschner, 1922; Thomson-Walker, 1927; Mayo Clinic—cited by Scholl), an incidence of almost 8 per cent, as well as one adenocarcinoma (Futterer, 1905). These cases are probably only a part of a number that have never been reported and can be considered as some support to Hinman and Gibson's observations on the malignant tendency of leukoplakia noted in the bladder. The treatment *per se* is nearly always directed to the associated condition which is the chief disturbing factor. Treatment could not be directed to the leukoplakia of the kidney pelvis itself inasmuch as it is practically never diagnosed except at operation or postmortem, unless it is observed in the bladder. The distribution between the kidney and bladder is nearly equal (40:44, Briggs and Maxwell). In closing let me stress, pathologically its obscure etiology and pathogenesis; clinically the urinary infection and chronicity in its symptomatology; and, finally, a possible relationship to malignancy.

I wish to thank Doctors Gibson, Hinman, Scholl, and Day for their excellent discussions.

THE HEART IN REFERENCE TO ANESTHESIA

By Robert William Langley, M. D.
Los Angeles

REFERRING to the management of heart cases in anesthesia, not many years ago the following statement was made by a well-known anesthetist: "Unless some definite signs such as swollen ankles, pulmonary edema, or dyspnea are present, it is unnecessary to pay attention to any heart lesion."

Heart disease may be a serious complication in anesthesia and, in the light of our present knowledge, one would hardly agree to such a statement. With the more refined methods of today we now attempt to estimate the functional capacity of the heart to do the work which might be demanded by the added stress of anesthesia and operation.

The problem today is not so much the type of anesthesia one should choose, but rather the recognition of the exact physical status of the patient. The diagnosis of latent cardiovascular disease requires first an accurate history. The anesthetist should see the patient before the operation and discover for himself whether or not there are factors of importance in the history. One should ascertain whether or not the patient has been getting short of breath on moderate exertion for a few months or weeks before coming to the hospital. Also, particularly in older individuals, whether any member of the family has noticed that the patient's lips and ears change in color after unusual effort. It is important to know whether the patient has ever had a high blood pressure or whether there has ever been a sense of discomfort or pain in the chest after excitement or exercise. A history of inflammatory rheumatism, tonsillitis or syphilis is important.

The physical examination should be made with particular attention to the condition of the arterial system. Brachial artery pulsation or pulsation in the neck are valuable signs. The blood pressure should be taken several times and one should be certain of both the systolic and diastolic pressures. An attempt should be made to determine the vital capacity, but if this is not feasible the breath-holding test of Sabrasez should be substituted. This consists of holding the breath as long as possible, forty seconds or more being normal. If there has been a history of vague upper abdominal pain, an electrocardiographic examination may reveal a case of severe coronary artery damage. This should contraindicate general anesthesia. Frequently an electrocardiogram is the only diagnostic test in severe myocardial damage.

In the diagnosis of cardiovascular conditions, consideration of the heart alone is not sufficient. The blood vascular system is equally important. The irregularities in this system may give rise to serious cardiac complications under the strain of anesthesia.

When surgery requiring general anesthesia is necessary, and where examination has shown a lesion of the cardiovascular system, it then becomes the anesthetist's duty to suggest the preoperative medical management and the choice of the anesthetic to be used. His decision will be based upon a knowledge of the amount the heart has been damaged and on its functional limitations. Valvular lesions are of secondary importance. If the heart shows no signs of congestive failure, in other words is well compensated, any general anesthetic can be used in the hands of an expert. Certain valvular lesions are more prone to precipitate heart failure than others, particularly aortic regurgitation, and mitral stenosis. One should be particularly cautious where a diagnosis of angina pectoris or coronary sclerosis has been made. It is the writer's belief that few patients with these conditions can tolerate general anesthesia.

CARDIAC IRREGULARITIES

The cardiac irregularities should be recognized. Auricular fibrillation and flutter are disorderly rhythms of ectopic origin and are signs of impending heart failure. Complete heart block is generally an expression of myocardial degeneration. These conditions are contraindications for general anesthesia. Some cases, however, may tolerate general anesthesia if given under the most ideal conditions. Sinus arrhythmia is of frequent occurrence in young individuals and is of no importance. Premature contractions do not necessarily indicate heart damage, and other signs of heart disease are found if they are of importance.

Pulsus alternans is of rare occurrence and is generally associated with either hypertension or coronary sclerosis. The prognosis is bad in these cases and general anesthesia is contraindicated. A gallop rhythm when heard is of serious moment and means a rapidly failing left ventricle.

Particular attention should always be given to the blood pressure. If the systolic pressure is 100 or less, spinal anesthesia is contraindicated. Moot's rule is certainly of value. The rule is that

if the pressure ratio is high or low there is reason to apprehend danger during general anesthesia. When a patient is found to be of a nervous, apprehensive nature it is often better judgment to use gas anesthesia combined with novocain where otherwise novocain alone would be used.

Factors which tend to increase the pulse rate are to be eliminated as much as possible, and for this reason I believe that all cardiac patients should be given some preoperative opiate. Pantapon with or without atropin is preferable to morphin, as it probably gives greater analgesia and anesthesia and less nausea and vomiting than morphin. Scopolamin and morphin may be used when the blood pressure is not too low. If there is reason to believe that the patient might suffer a break in compensation as the result of anesthesia and operation, then digitalization should be carried out before operation.

The heart is blamed for many deaths that occur on the operating table. Very few of these are actually due to acute heart failure. Severely damaged hearts with signs of congestive failure will weather the storm of anesthesia and surgery, and in these cases death may occur from a few hours to several days after the operation. Cardiac failure sometimes occurs during anesthesia from loss of blood, and this is most effectively treated by blood transfusion.

GRAVE SIGNS IN ANESTHESIA

During the actual anesthesia there are certain cardinal signs of heart failure and shock that may be detected by an accurate observer. Blood pressure readings should be made every five minutes during operation on a patient with cardiovascular disease. This is very important and nothing should be allowed to interrupt these readings. It probably is safe to continue the operation as long as the increase in pulse rate is not greater than 25 per cent and the blood pressure remains stabilized. A rising pulse rate and falling blood pressure is always a dangerous state of affairs during general anesthesia.

A patient should be considered in a state of shock when the pulse is 100 and rising, and with a blood pressure which has reached 90 mm. or less. Thirty minutes under such conditions without relief generally means death of the patient within twenty-four to seventy-two hours. In a thousand cases reviewed by Miller where shock was present for thirty minutes, the mortality was almost 70 per cent.

The position of the patient on the operating table may be important. The orthopneic position is best for cardiac cases with decompensation. The Trendelenberg position is not advisable, but if this position is used the change to the normal position should be made gradually.

It is quite agreed that local anesthesia is of great value in cardiovascular cases where the patient is not of a nervous type. Spinal anesthesia has a high mortality in low blood pressure and also in arteriosclerosis without hypertension. It should be used in surgical procedures below the umbilicus when possible, particularly in hypertension cases.

Gas anesthesia should be used in cardiovascular cases only by those well trained in its administration. In the hands of a novice ether is probably a safer anesthetic.

Complete surgical anesthesia can rarely be maintained with nitrous oxid and oxygen without there being an associated anoxemia. This anoxemia and its attendant increase in blood pressure constitute a definite contraindication in cardiovascular disease, particularly where there has been a history of hypertension. The ethylene-oxygen gas combination offers in many of these cases an ideal anesthetic.

Surgical anesthesia can be obtained with as much as 25 per cent oxygen, and it never becomes necessary to reduce the mixture to less than 15 per cent oxygen.

Excessive rebreathing or the stimulation of respiration with carbon dioxid introduced into the gaseous mixture should be guarded against. Undoubtedly this stimulation frequently tends to increase the blood pressure and bring about an undesirable increase in the heart rate.

Every effort should be made to decrease postoperative vomiting, as this frequently proves an added embarrassment to an overworked heart. Postoperative depression from ether narcosis is often a serious menace to the circulation and serves as the chief contraindication to its use in cardiac cases.

Chloroform under no circumstances should be used even for short periods in cardiac cases. It has recently been shown by a group of French workers that there is a very rapid degeneration of hepatic tissue during chloroform narcosis even for short periods.

The immediate postoperative care of patients with cardiovascular defects is important. The position in bed must assure a minimum of cardiac embarrassment. If heart failure appears, stimulants are to be relegated to the background. These patients need cardiac rest. Morphin should be used unsparingly unless there is an edema of the lungs. Digitalis is not a panacea in heart failure, and if the patient has been getting digitalis previously, nothing will be gained by increasing its administration. Caffein and its derivatives probably offer some circulatory support by increasing peripheral vasomotor tone. Its use, however, is empirical. Camphor in oil has fallen into disrepute as a therapeutic agent during recent years, but clinically it appears to be of some value in many cases, its action probably being similar to that of caffein.

Adrenalin is of value in sudden syncope, circulatory shock, etc., but is of no value when used for a failing myocardium. Strophantin may occasionally be used in desperate cases where the heart rate exceeds 160 per minute. I have never seen this drug give a satisfactory result in such cases.

Too much cannot be said against the misuse of intravenous therapy in cardiac cases. The introduction of large quantities of liquids into the veins

may prove a serious load for the heart. If fluids are indicated they should be given by rectum or subcutaneously.

SUMMARY

The proper evaluation of the risk to be taken is the most important factor in the management of cardiac cases during anesthesia. Practically all individuals with cardiovascular conditions can be carried through a surgical procedure with some form of anesthesia. The type of anesthesia should be chosen after a thorough study of all factors. The kind of anesthetic used is of secondary importance when given by skilled hands.

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SIGHT-SAVING CLASSES IN CALIFORNIA*

By FRANK H. RODIN, M. D.
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DISCUSSION *by Anita M. Mühl, M. D., San Diego; A. Ray Irvine, M. D., Los Angeles.*

THE physical examination and the education of handicapped children has been given considerable attention in recent years. At the meeting of this section last year, the writer presented a paper dealing with the hard-of-hearing children.[1] At this session, problems connected with children having visual defects will be considered.

To educate children whose sight does not permit them to work in the regular grades, or who attempt it only at the expense of their already limited sight, special sight-saving classes are maintained. These classes are also known as conservation-of-vision classes. According to the National Society for the Prevention of Blindness,[2] for all practical purposes, children having less than 20/200 vision by Snellen's chart measurement are considered educationally blind and are usually eligible for schools or classes established for the education of blind children. Between this group and the group that may be profitably educated in the regular grades are children with eye troubles of four types, which make education in the regular school classes impractical or impossible. These four groups will be presented later in a letter which was sent to the superintendents of school districts in California.

SCHOOL ROOM EQUIPMENT

For such children so incapacitated, a room under a specially trained teacher is set apart in a regular school building. This room should have a good exposure, preferably eastern or western, to give the maximum of light with the minimum of glare, and be equipped with special artificial lighting for use on dark days. The pupils' desks are adjustable and movable (Figs. 1, 2, and 3). Specially printed large-size type books are used (Fig. 4). For writing, slightly rough, unglazed, Manila paper, and pencils with soft, thick, heavy lead are used. Pen work is not encouraged, but in case it is indicated, a special drawing pen is given (Speedball B-4). Heavy, soft chalk is used for writing on the blackboard. The pupils are taught early the use of the typewriter by touch system (Fig. 5). Teaching is oral as much as possible, and the child prepares his lesson under the supervision of the special teacher. The pupil recites all oral work in the ordinary recitation room, but the written work is done in the special class, with the special sight-saving tools.

Sight-saving classes as a method of a specialized education are of a relatively recent origin. They were originated in England in 1908, and were introduced in America in 1913. In California the first class was established in San Francisco in 1922, and in Los Angeles in 1925.

This study, which is here presented was undertaken to determine to what extent sight-saving classes have been established in California; what arrangements have been made for the special training of children with seriously defective vision; what investigations have been made to locate such children. The study was limited to children attending elementary classes.

A letter and questionnaire were forwarded to the forty-three city and fifty-seven county superintendents of schools. Replies were received from twenty-eight cities, or 65 per cent, and from thirty-three counties, or 58 per cent. All large cities, with the exception of Pasadena and Santa Barbara, replied.

The letter and the questionnaire referred to are here reproduced:

LETTER TO CALIFORNIA CITIES AND COUNTIES

The writer is undertaking a survey of school children in the State of California whose sight is so impaired that study will aggravate the eye condition, or who have such seriously defective vision that they cannot profit in the regular grade and need special instruction in sight-saving classes.

Sight-saving classes are for such children as have eye troubles which make education in regular school classes impractical or impossible, and yet have sufficient vision that they are not eligible for schools for the blind. Such children are:

1. Children having more than 20/200 vision but not possessed of sufficient visual acuity to enable them to read ordinary print or to see figures or letters on the blackboard.
2. Children who may be able to read ordinary type, but only at the expense of their vision or general health.
3. Children with progressive eye trouble.
4. Children with diseases of the eye that seriously affect vision.

The defects are usually due to either congenital defects of the eyes, progressive near-sightedness (progressive myopia), or loss of vision due to disease or injury. This survey does not include the totally blind children.

Kindly fill in the enclosed questionnaire and return at your earliest convenience, for which a stamped envelope is enclosed. A similar questionnaire is sent to all city and county superintendents in California.

QUESTIONNAIRE

1. Have you established sight-saving classes in your community? How many?
2. If you have, will you please send a copy of your standards for admission to these classes?
3. If not, what arrangements have you for special training of children with such seriously defective

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* From the Division School Health Inspection, Department of Public Health, San Francisco.

* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

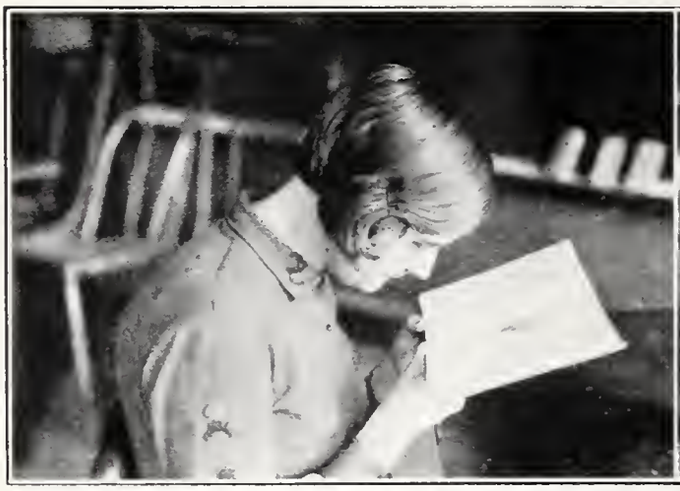


Fig. 1.—Myopic girl trying to read from ordinary textbook.

Fig. 2.—With proper glasses she has no difficulty in reading, using the large-type books and a properly adjustable desk.

vision that they cannot profit by using the equipment of the regular grades?

4. Has any investigation been made to find the number of such children?

5. If so, please state the number of children found.

6. If possible, kindly enclose a list of the diagnoses of the eye conditions in such children.

7. How many children attend the elementary schools in your district?

8. Kindly add any further information you may have to offer in this connection.

A compilation of the replies received gives the following interesting facts:

I. REPLIES FROM CITIES

Albany, with 1000 children attending elementary schools, has one partially blind child.

Bakersfield, 4724 children, has eight partially blind, reported through the registration of minors, and were recommended to the State School for the Blind.

Berkeley has fourteen children reported through the registration of minors, who were referred to the State School for the Blind.

Burbank, 2100 children, reports that a visiting teacher gives instruction to two children in their homes.

Eureka, 2500 children, has three who would profit in a special class.

Fresno, 8000 children, advises only one child with severe defective vision.

Long Beach, 13,500 children, has one sight-saving class with twelve children, with the following diagnoses: Cataract due to spinal meningitis; cataract due to persistent hyaloid membrane; cataract with choroiditis; corneal opacities due to ophthalmia neonatorum; hyperopia with strabismus; hyperopia with astigmatism; myopia, progressive; myopia with astigmatism; albinism with nystagmus.

Long Beach standard for admission:

1. Children who cannot read more than 20/60 at a distance and who cannot read No. 2.00 at 20 cm.

2. Myopes who have more than six diopters of myopia.

3. Children who have progressive myopia.

4. Hyperopes who have symptoms of asthenopia and who have more than five diopters of hyperopia.

5. Children with astigmatism of more than 3.50 diopters and whose vision cannot be brought up to more than 20/60.

6. Children with maculae, nebulae, leukomae, which interfere with sight and lead to eye-strain.

7. Cases of keratitis. In the interstitial type, if the vision remains low after the eye has been quiet for three months or in persistent recurring conditions while under treatment.

8. Children having congenital cataracts, or secondary cataracts where no acute condition is present, with vision 20/60 or less.

9. Children having congenital malformation, where the vision is 20/60 or less.

10. All cases having a chronic disease of the fundus, where the vision is 20/40 or less.

Mentality: Children shall be admitted on the basis of a mental test approved by the State Department of Education.

Los Angeles, 166,531 children, has five elementary classes with fifty children, and one junior high school class of ten.

Los Angeles standard for admission:

1. Children who cannot read more than 20/70 on a standard Snellen's chart in the better eye, or who cannot read No. 2.00 at 20 cm.

2. Myopes who have more than six diopters of myopia and under ten years of age.

3. Children who have three diopters of myopia, which is progressive.

4. Hyperopes who have symptoms of asthenopia and whose vision in their better eye falls below 20/70.

5. Children who have astigmatism of more than 3.50 diopters and whose vision cannot be brought up to more than 20/70 in the better eye.

6. Children with corneal opacities whose vision is 20/50 or less in the better eye.

7. Cases of inactive keratitis, where vision is 20/50 or less in the better eye.

8. Children having congenital cataracts, secondary cataracts, congenital malformations, or fundus lesions where no acute condition is present with vision of 20/50 or less in the better eye.

(a) Any child, who in the opinion of the oculist, would benefit by sight-saving training, will be accepted subject to the suggestion of the oculist for treatment or training.

(b) It is assumed that these conditions exist after the proper refractions have been made.

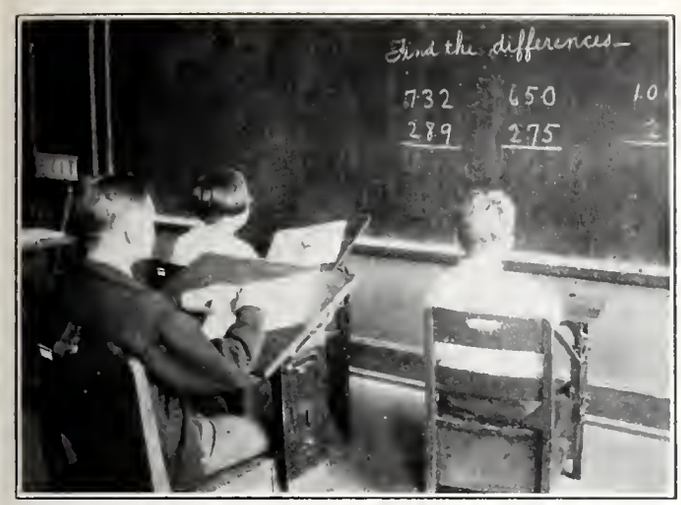


Fig. 3.—Movable desks. The pupils have moved their desks to the blackboard to do class work.

Oakland, 36,000 children, reports ninety children who were referred to the State School for the Blind.

Pasadena did not reply, but I have been informed by Doctor Mühl that there is a sight-saving class.

Salinas, 1030 children, reports one child with poor vision, due to a glandular condition.

San Bernardino, 4000 children, reports several cases who are being taken care of in the special opportunity school.

San Diego, 14,500 children, reports twenty-two children. A sight-saving class is being considered. The diagnoses are: Nystagmus, two; no sight in one eye, other 20/40, four; can only detect light, not in school, ages seven and eight years, two; no sight in one eye, other defective, not in school, ages eight and nine years, two; congenital cataracts, four; malformed eyes, one; congenital eye defect, one; inverted vision, one; scars, one; syphilis, one; very little vision, one; strabismus, poor vision, O. U. 20/70, one; nerves of the eyes affected, one.

San Francisco, 54,503 children, reports three classes and thirty-three children. There are thirty-three other children for whom classes are to be established. The diagnoses are:

(*a*) Two classes, twenty-one children: Progressive myopia, one with nystagmus, four; progressive myopia, detachment of retina one eye, one; progressive myopia, cataract one eye, nystagmus, one; hyperopic astigmatism, two with nystagmus, four; interstitial keratitis, three; optic atrophy, two; congenital cataracts, two with nystagmus, three; nystagmus, two; corneal scars, one.

(*b*) Class for Chinese children, twelve children: Progressive myopia, eight; optic atrophy, nystagmus, one; congenital cataracts, one; malformation of the eyeballs, two.

(*c*) On the waiting list: Progressive myopia, including five Chinese children attending junior high school, eighteen; congenital cataracts, one with nystagmus, three; albinism, one with nystagmus, two; congenital coloboma of the choroids, two; nystagmus, five; interstitial keratitis, one; corneal scars, one; hyperopia, one.

Standard for admission: Any child with defective vision who may profit by attending a sight-saving class, and whose intelligence quotient is 80 per cent or more.

San Luis Obispo reports one high myopia plus an injury to the eyes due to excessive vomiting.

Stockton, 6800 children, reports having heard of one or two such children in several years.

II. REPLIES FROM COUNTIES

Butte, 2079 children, has one who has not sufficient visual acuity to read ordinary print.

Kern, 3000 children, reports one child with partial vision listed for attendance at the State School for the Blind.

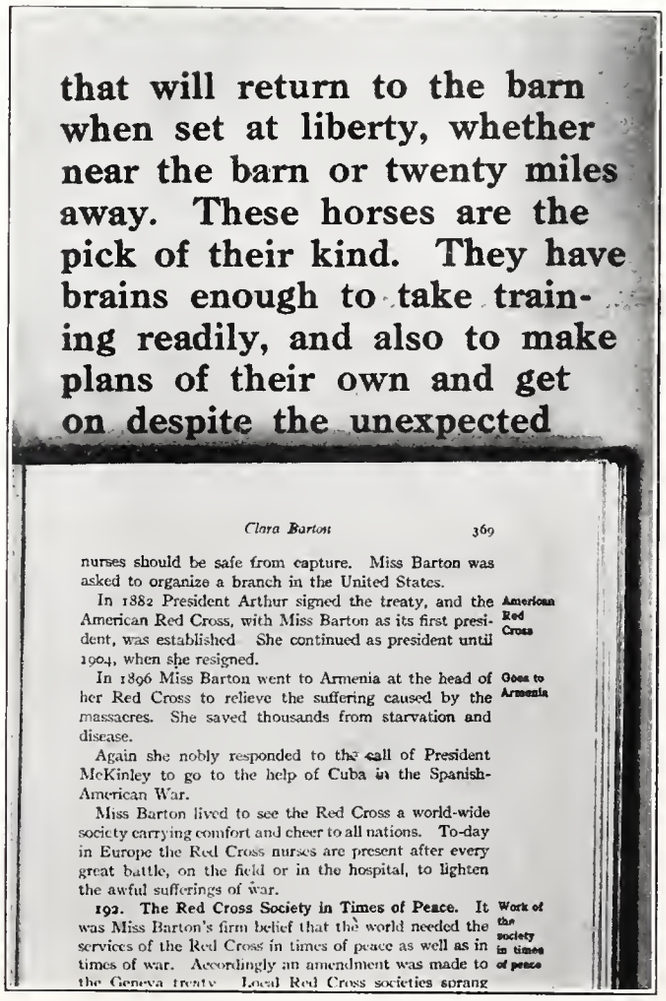
San Bernardino has three children reported through the registration of minors as partially blind.

San Diego, 7766 children, reports twelve cases.

San Luis Obispo, 4000 children, has five children reported through the registration of minors as partially disabled on account of defective vision; two of them are seventeen years of age.

Santa Clara, 12,070 children, has twenty children reported through the registration of minors.

Trinity, 330 children, reports one child, age fourteen years, who is studying at home, and one


that will return to the barn when set at liberty, whether near the barn or twenty miles away. These horses are the pick of their kind. They have brains enough to take training readily, and also to make plans of their own and get on despite the unexpected

Clara Barton 369

nurses should be safe from capture. Miss Barton was asked to organize a branch in the United States.

American Red Cross

In 1882 President Arthur signed the treaty, and the American Red Cross, with Miss Barton as its first president, was established She continued as president until 1904, when she resigned.

Goes to Armenia

In 1896 Miss Barton went to Armenia at the head of her Red Cross to relieve the suffering caused by the massacres. She saved thousands from starvation and disease.

Again she nobly responded to the call of President McKinley to go to the help of Cuba in the Spanish-American War.

Miss Barton lived to see the Red Cross a world-wide society carrying comfort and cheer to all nations. To-day in Europe the Red Cross nurses are present after every great battle, on the field or in the hospital, to lighten the awful sufferings of war.

Work of the society in times of peace

192. The Red Cross Society in Times of Peace. It was Miss Barton's firm belief that the world needed the services of the Red Cross in times of peace as well as in times of war. Accordingly an amendment was made to the Geneva treaty Local Red Cross societies sprang

Fig. 4.—Comparison of type of the special books used in the sight-saving classes with the ordinary type used by a pupil with normal vision in a similar grade.

attending high school and takes subjects that do not cause eye-strain, as music and typing.

Twelve other cities, with 30,724 children, and twenty-six other counties, with 104,813 children, report no cases for sight-saving classes.

COMMENT

The following cities have established sight-saving classes: Long Beach, one class with twelve children; Los Angeles, five elementary classes with fifty, and one junior high with ten; Pasadena; San Francisco, two classes with twenty-one, and one class for Chinese children with twelve.

With a few exceptions no survey has been made to determine how many children have very poor vision. In some of the schools the vision is taken by the school nurse; where there is a medical school inspector, this is done by him. When a defect is found the parents are notified and requested that the child's vision be corrected. Los Angeles and San Francisco have ophthalmologists on their medical school inspection staff.

The information obtained from the registration of minors is not very reliable, as it is based on the statements of the parents, often without any examination having been made by an ophthalmologist.

Experience indicates that one child in every 500 of the school population requires the advantage of a sight-saving class. This is well illustrated by the enrollment in the sight-saving classes in Ohio,[3] where classes have been established since 1913. In the city of Cleveland with a school population of 132,561, 242 children attend sight-saving classes, a ratio of 1:500; Cincinnati, 49,808 children, ninety-five in sight-saving classes, ratio 1:500; Lorain, 8342 children, sight-saving class of seventeen, ratio 1:400; Oak Harbor, 522 children, sight-saving class (county class) of ten. This would indicate that there are in California many children with poor vision attending the regular classes who would profit greatly in sight-saving classes.

RECOMMENDATIONS

Children who do poorly at school because of defective vision, or who in spite of their glasses are unable to see the blackboard or read print with ease, should have an eye examination by an ophthalmologist to determine whether they would profit in a sight-saving class.

It should be the duty of all ophthalmologists and eye clinics to report to the Board of Education in their community any child who comes under their observation who would benefit by attending a sight-saving class. It is unfortunate that many children who could be recognized as candidates for sight-saving classes are not seen early enough by ophthalmologists.

Ophthalmologists should coöperate with the Boards of Education in their respective communities for the establishment of sight-saving classes

Fig. 5.—A sight-saving pupil using a typewriter. The letters of the keys on the typewriter are not marked so that the pupil may learn the position of the letters through the sense of touch.

and the recommendation of children to these classes. Rural communities may unite in the establishment of such a class. At the 1927 session of the California legislature there was passed a measure known as Senate Bill No. 630, which provides that in the education of a handicapped child all costs over and above the cost of educating a normal child be reimbursed to the district, one-half coming from the state and one-half coming from the county. This excess cost, however, cannot exceed $200 per year for each child in average daily attendance. There has been recently organized by the State Board of Education a division of special education to provide for the special education of the handicapped children, with Dr. Anita M. Mühl as chief.

SUMMARY

1. A survey of sight-saving classes in California was made.

2. One hundred questionnaires were sent to the city and county school superintendents, and sixty-one replied.

3. Long Beach, Los Angeles, Pasadena, and San Francisco have established sight-saving classes.

4. Experience has shown that one in every five hundred of the school population requires the advantage of a sight-saving class.

5. Ophthalmologists and eye clinics should report to the Boards of Education in their respective communities, any child who would profit in a sight-saving class.

6. Ophthalmologists should coöperate with Boards of Education for the establishment of sight-saving classes.

490 Post Street.

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DISCUSSION

Anita M. Mühl, M. D., (3578 Seventh Street, San Diego).—As physicians, we know the great danger of allowing impaired eyesight to be strained, but in the schools in general, because of the lack of a careful testing program, many children with poor vision are permitted to further injure it.

As an educational problem the condition of impaired vision is of very real importance. Children with average or even superior intelligence may do very poor school work if they have abnormal eye conditions. They not only frequently have to strain to see, but often cannot see the work on the board at all.

Conditions of eye-strain often are accompanied by a sense of irritability and of fatigue, and when this strain is alleviated the entire disposition of the child is apt to change.

The equipment for classes in sight-saving is expensive and many school boards hesitate to establish classes in conservation of vision because of the additional cost.

If the members of the medical profession would give their support to this really progressive educational measure and coöperate with their local school departments by reporting all cases in their own practice which should have the advantage of the special attention offered in sight-saving classes, this work undoubtedly would progress much faster than it has.

One of the most interesting sight-saving classes in the state is the class for Chinese children in San Francisco. This class resolves itself not only into a conservation-of-vision class, but also into a learning-of-English class as well.

The San Francisco school system is to be congratulated on having associated with it a man who is as interested in these problems as Doctor Rodin is and who has been willing to make such an effort to get together the information which he has presented to you in his paper.

In closing, the suggestion is made that all physicians (whether ophthalmologists or not) take the time to visit one of these classes when they happen to be near any of the cities where such work is being carried on; in the South, Los Angeles, Pasadena, and Long Beach have developed this work, while in the bay region San Francisco can offer three classes for inspection.

A. Ray Irvine, M. D. (1142 Roosevelt Building, Los Angeles).—In the city of Los Angeles there is a consultation committee which meets with the medical director of the health department of the schools in an advisory capacity. At these meetings all the problems relative to examination of school children's eyes are discussed. Uniform methods of examinations are being adopted. It is the aim of the department that every student have a complete physical examination, including eyes, at least four times during his school life. Those students found to have defective vision are advised to have eye examinations made. The examining doctors of the health department render first aid in cases of disease. Teachers noting evidence of defective vision or diseased eyes report these pupils to the school nurse. School nurses inspect the children weekly and refer students with defective vision or diseased eyes to the family physician or to the clinics. We have a Parent-Teachers Health Center at Yale Street, Florence Avenue, San Fernando, and San Pedro, in addition to the General Hospital and other hospital clinics. In all districts there are sight-saving classes for students unable, on account of visual defects, to do the ordinary school work. There are also a number of Braille classes for those of marked visual defects, including blindness.

The importance of this work cannot be overestimated and the combing out and segregation of visual defects, as well as the recognition and treatment of eye diseases is being, each year, better perfected.

THE LURE OF MEDICAL HISTORY

CHRISTIAN ALBERT BILLROTH

By Edward J. Kilfoy, M. D.
Los Angeles

On April 26, 1929, the medical profession in all parts of the world will pay respect in commemoration of the one hundredth birthday of Christian Albert Billroth, who was born on April 26, 1829, on the island of Rügen. On this island

CHRISTIAN ALBERT BILLROTH
1829-1894
1929

he spent his childhood, and early boyhood. His home life and early environment were the best.

After completion of his early education he enrolled in the medical school at Greifswald, Göttingen, and in Berlin. In 1852 he received the degree of Doctor of Medicine from Berlin. During his college days he prepared and submitted a graduating thesis concerning "The Nature and Cause of Pulmonary Affections which Arise from Section of the Vagus." This was a very valuable contribution to medical literature of that time. Since then numerous experiments have been conducted along the same line, and have added valuable information pertaining to general surgery. During his medical school days he was under the tutelage of such men as Rudolf, Wagner,

Johannes, Müller, Lotze, and von Graefe. It was his parents' wish that he devote himself to the study of music, but his future career was influenced by the advice of von Baum and B. von Langenbeck, who suggested that he devote his efforts to surgery. This advice he followed from the very beginning, and he began with the study of normal and pathological histology, physiology, and general pathology. After his graduation at Berlin he spent considerable time in postgraduate study in Paris and Vienna. In 1853 he received the appointment as assistant to B. von Langenbeck at the Royal clinic in the Berlin University, and it was at this clinic at a very young age that he became a very brilliant operator, and rapidly progressed in the medical profession. In 1856 he was doing excellent work as *Privatdocent* at Berlin University. In 1858 he was regarded by the most prominent surgeons as the most brilliant young surgeon in Germany.

In 1861, at the early age of thirty-one, he was appointed professor and director of clinical surgery at Zurich University. This was a wonderful opportunity for him, as it afforded him the independence of thought and action that was befitting to a young man of his type. It was the freedom thus permitted that enabled him to carry out many of the important surgical procedures that today bear his name. During this period he was particularly interested in septic fever and wound infection. He carried out research in these particular fields over a long period of years with Weber. At a later period he continued to carry on the same work at Vienna.

Two years later, in 1863, he made his first noteworthy contribution to medical literature on "General Surgical Pathology and Therapeutics." This contribution was later translated into Italian, Spanish, Polish, Hungarian, Servian, Croatian, and Japanese. In 1860 he was appointed editor of *Clinical Surgery,* which he held with Gurth until his death.

On August 20, 1867, at the age of thirty-seven, at the height of his activity and in the midst of his youth and vigor he accepted the chair of surgery at the University of Vienna. In this position, at a young age, he had to combat a great deal of antagonism and opposition on the part of his fellow colleagues and showed his masterly ability, by winning their friendship in spite of opposition. In his clinic at Vienna those who enjoyed the privilege of coming in contact with him learned to love and admire him. His lectures there were masterpieces of thoroughness, and he was an eloquent lecturer with fluency of speech. His great love of the truth was one of the attributes that made him a truly great and admirable man.

At the beginning of the Franco-Prussian War he was made military surgeon; during this period of service he made many noteworthy observations and contributions on military hospitals and hospitalization. After the war he began a thorough study of the arrangement of courses in medical schools throughout the world and recorded his findings in a textbook entitled "How to Teach and Study the Medical Sciences." Also he contributed to the literature on wound infection, tuberculosis, and diseases of the mammary gland. He wrote several monographs on the transportation of the sick and wounded, home and hospital nursing.

OTHER ACHIEVEMENTS

During this period of his life his most noteworthy and valuable contributions to medical literature upon gastro-intestinal surgery were published. He can be classified as the pioneer surgeon of the gastro-intestinal tract. This honor is due him for the many valuable contributions and surgical procedures that bear his name even to this day. He was the first to make a complete report of his surgical results either successful or unsuccessful in character. This today is the generally accepted manner of utilizing the statistical method in surgery. He has been one of the most productive and original research workers of all time, and his excellent work lives after him. He has had few equals as a technical surgeon. In 1872 he was the first to resect the esophagus. In 1873 he was the first to resect the larynx. In 1881 he was the first successfully to resect the stomach, "pylorus," for carcinoma. Today the two major surgical operations upon the stomach bear his name, and all other methods are but modifications of his original operations. The Billroth one, and Billroth two are the types of operations from which many other surgical methods have been devised. His success in resection of the stomach stimulated him to further experiments in surgery upon the small and large intestines. In 1891 he was the first to perform "interilio-abdominal amputation." Between the years of 1878 and 1883 he devoted the greater part of his time to the study of intestinal resection. It was in this field that he laid the foundation for further experimental work, and a greater part of the work along this line today is but repetition of his original study. Billroth as a teacher has had few equals, and many of his pupils have stamped their name in medical literature for all time. Among Billroth's pupils are many notable medical men, Mikulicz, Wolfer, Gersuny, von Eiselberg, and many others.

BILLROTH'S LOVE OF MUSIC

From his early youth Billroth was naturally musical, as his grandmother and grandfather were both talented musicians. His grandmother, Frau Wilchens, filled an engagement at the Berlin Opera House. Billroth was a beloved companion of music until the end. He wrote many musical criticisms for the *Zuriche Zeitung.* He was not only noted for his masterly performance on the violin, viola, and piano, but for his musical criticisms and compositions, many of which are classified today as of the best. During his later years he felt the desire to arrange clearly and outline his views concerning music. This musical manuscript he wrote, and after his death it was given to Ed Hanslick. Among his best friends were many musical composers and critics, but the ones most frequently mentioned are Johannes and Brahms.

He received many decorations from his own and foreign governments: Russia conferred the

Iron Cross upon him; in America he was made a member of the *Academic Chirurgia*, Philadelphia; Pathological Society, Saint Louis; *Societas Chirurgia Americana*, Washington, and of many others.

Christian Billroth represents one of the most scholarly, versatile, and inspiring characters in the entire history of medicine, both in Europe and America. He was an investigator who accomplished and perfected achievements of enduring excellence in two arts, widely divergent, namely, music and surgery.

After a long and happy home life, a successful medical career, his death came on February 6, 1894, at the age of sixty-five, at Abbazia. Today his good works still live, and his name has been inscribed in medical literature, never to be forgotten.

1136 West Sixth Street.

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CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

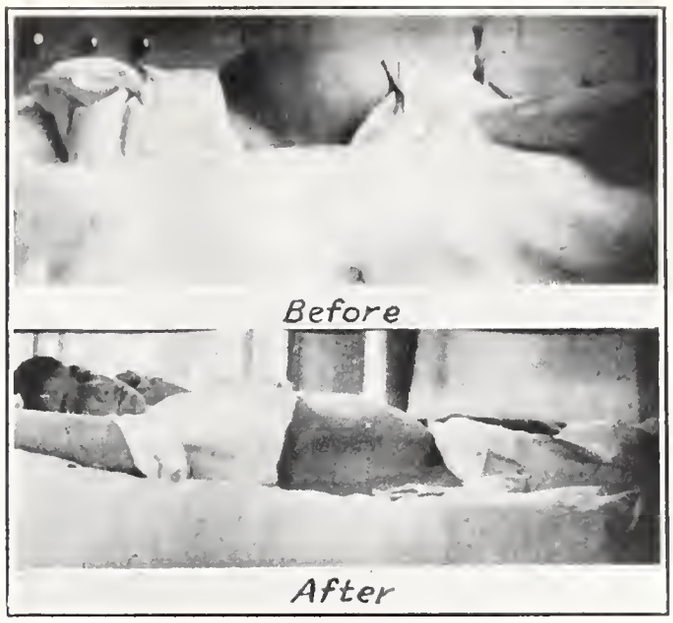
INTESTINAL OBSTRUCTION RELIEVED BY SPINAL ANESTHESIA*

REPORT OF A CASE

By Harold Brunn, M. D.
AND
Franklin I. Harris, M. D.
San Francisco

THE use of spinal anesthesia for the relief of a certain type of ileus is practically an unknown procedure in this country. European surgeons, however, have used this treatment of intestinal obstruction extensively and have reported many cases relieved by its use.

Duval [1] reports on four hundred cases of intestinal obstruction, collected from various European surgeons, in which spinal anesthesia was used as a method of treatment. This series included two hundred and fifty-seven cases of strangulated hernia in which spontaneous reduction was induced in 27 or 10 per cent; forty-four, postoperative paralytic ileus in thirty of which, or 60 per cent, the acute condition was relieved; and ninety-nine cases of mechanical obstruction in which the result was obtained in only six cases, or 16 per cent. Duval concluded that the best results are obtained by this method in the treatment of postoperative paralytic ileus, and that where relief is obtained in such cases by spinal anesthesia a secondary operation is not necessary. In all other cases he believes that spinal anesthesia should be used only as an anesthesia and not as a method of treatment.



Intestinal obstruction relieved by spinal anesthesia

Chenut [2] reports on twenty-two cases of intestinal obstruction in which spinal anesthesia gave relief of symptoms. In those cases of mechanical obstruction and strangulated hernia subsequent operation was necessary, but in the case of ileus without mechanical obstruction no operation was required.

Lecene [3] has found that spinal anesthesia produces favorable conditions for operation in cases of intestinal obstruction and induces rapid evacuation of the intestines after operative relief of the obstruction. But he reports two cases of acute intestinal obstruction operated on under spinal anesthesia in which death occurred immediately after operation, and Lecene points out that spinal anesthesia is dangerous in patients that are already in a condition of shock, and in cases of severe infection and toxemia. He believes that it is of real value in some cases of postoperative paralytic ileus if it is used with caution and under the proper indications.

Riche,[4] who has used spinal anesthesia in over four thousand cases, admits that it may overcome the spasmodic element in intestinal obstruction, and that it also relaxes the anal sphincter facilitating rapid evacuation of the intestines. But he emphasizes that it does not overcome any actual obstruction.

Recently Markowitz and Campbell [5] of Toronto studied this question experimentally on dogs. They produced a paralytic type of ileus in dogs by either injection of iodin intraperitoneally or by traumatizing the intestines at laparotomy, and found that spinal anesthesia absolutely abolishes the inhibition of bowel movements brought about by these measures and produces in each case an immediate and complete evacuation.

The case we have to report is one of a paralytic ileus occurring in a patient with a probable congenital megacolon (Hirschsprung's disease).

* From the Surgical Service of Mount Zion Hospital.

* Read before the San Francisco County Medical Society, April 17, 1928.

REPORT OF CASE

L. B., age sixteen years, female, entered the Mount Zion Hospital on the surgical service of Dr. Harold Brunn on January 25, 1928. Her entry complaint was abdominal distention and constipation. There was no history of any operations. The mother of the child stated that since early childhood the patient had been markedly constipated and on numerous occasions had had attacks of acute abdominal distention. They were usually relieved by enemata and cathartics. A month previous to the present entry the patient had an especially severe attack of constipation with abdominal distention which was not relieved by the usual enemata, but after three days an exceptionally large dose of castor oil produced an evacuation with complete relief of the distention.

Three days previous to the present entry, patient again became markedly constipated and distended. Castor oil and enemata were tried at home repeatedly without success, and as the patient's distention was increasing she was brought to the hospital. The general physical examination showed an apathetic girl, exhibiting apparent signs of endocrine dystrophy. Her stature and mentality were much below that of a sixteen-year-old girl. Her facies were typical cretinoid, and she had the male distribution of hair, dry skin, abnormal distribution of fat pads and spade-like hands. The physical findings otherwise were negative, except for the extremely distended abdomen. The distention was so marked as to cause protrusion of the umbilicus, and palpation was impossible because of the tenseness of the abdominal wall. No peristalsis could be heard. Temperature on admission was 36.4 C. Pulse was 80. Hemoglobin, 75 per cent; red blood count, 4,900,000; white blood count, 12,700, with 87 per cent polymorphonuclears.

Course in Hospital.—Aside from the pain caused by the tremendous distention along both costal margins the patient had no complaints and did not look toxic. It was decided to attempt to relieve her distention by gas enemata and pituitrin. On January 25, the day of entry, a 1-2-3 enema of glycerin, magnesium sulphate, and water, preceded by one-half cubic centimeter of pituitrin, was given without results. On January 26 a milk of molasses enema was given with the patient in knee-chest position, the enema being preceded by one-half cubic centimeter of pituitrin. Again, no results were obtained. Later on this day an olive-oil enema was given to be retained. And on January 27 three doses of one-half cubic centimeter of pituitrin one-half hour apart were given, and a small amount of gas with slight amount of liquid fecal matter were passed, but without any relief of the distention. On this day, for the first time, the patient vomited on two occasions, and her temperature for the first time was slightly above normal, it being 37.4. Pulse, however, remaining at 80. The vomitus was not fecal and consisted mainly of bile and gastric mucus, patient having had nothing by mouth since her admission to the hospital.

On the morning of January 28 patient's distention seemed more pronounced than at any time since her admission to the hospital. It was a week now since the distention was present, and in that time there had been practically no bowel movement or passage of gas. It was thought that something of an operative nature would have to be done. The patient was not showing any marked temperature reaction or increase in pulse rate, but we did not feel that much reliance could be placed on these usual indications of intra-abdominal pathology because of the endocrine peculiarities of this patient, nor did we wish to wait until fecal vomiting had commenced before interfering. It was decided to take the patient to the operating room, induce spinal anesthesia, and if no relief was obtained by this method to perform a laparotomy.

Spinal anesthesia was induced by the use of .6 of a gram of neocain injected intraspinally between the twelfth thoracic and first lumbar vertebra. Five minutes after the injection of the neocain the skin anesthesia extended from the toes to the level of the nipples, showing that we had a high and complete intra-abdominal anesthesia. Ten minutes after induction of the anesthesia the patient spontaneously passed a considerable amount of gas, and in the succeeding twenty minutes, aided by gentle abdominal massage, tremendous amounts of gas and soft fecal material were passed, the abdomen becoming flattened out in a manner almost comparable to the flattening of a toy balloon after it is punctured. The accompanying photographs graphically show the difference in the size of the abdomen before and forty-five minutes after the initial insertion of the needle for the spinal anesthesia.

Subsequent Course in the Hospital.—The patient had no ill effect from the spinal anesthesia and with the aid of colonic flushes in the next couple of days a tremendous amount of fecal matter was passed by the patient. From the third day after the spinal anesthesia to the present time, patient has had voluntary bowel movements with the aid of simple cathartics and mineral oil, and there has been no recurrence to date of the obstruction.

Subsequent studies of this patient by x-ray showed her to have a marked enlargement, elongation and dilatation of the entire colon. The sigmoid, in particular, was elongated and enlarged, and the x-ray diagnosis was that of megacolon. The gastro-intestinal fluoroscopy otherwise was negative. The basal metabolism also confirmed the impression of cretinism showing basal metabolic rate minus 35 per cent.

COMMENT

The spectacular manner in which spinal anesthesia caused an immediate evacuation of the bowels and complete relief of the intestinal paresis in a patient with a megacolon prompted us to report this case. We believe attention should be called to the possibilities of spinal anesthesia in the treatment of similar types of intestinal obstruction. *But we wish to emphasize also the fact that spinal anesthesia is not a substitute for any of the recognized operative measures that are indicated in the treatment of an obstruction due to a mechanical cause, such as a band or a strangulated hernia.* It would seem, however, that the paresis of the bowel which so often follows the operative relief of a mechanical cause of an obstruction should respond to spinal anesthesia.

The mechanism of this action of spinal anesthesia is not clearly understood, but a review of some of the fundamental experimental work done along this line gives us a very plausible theory to explain it. Bayliss and Starling [6] observed that simple laparotomies on dogs resulted in a cessation of bowel movements while the abdomen was open. After the splanchnics were severed, or the spinal cord destroyed, or the abdominal ganglia removed, the previously motionless intestines gradually became active and rhythmic bowel movements occurred. Meltzer and Auer [7] caused reflex inhibition of peristalsis in rabbits by simple dissection of the skin over the abdomen.

It is evident then that this type of intestinal paresis must be of the nature of an inhibition, the efferent pathway being the splanchnics. Markowitz and Campbell advance the theory based on their experimental work on dogs that paralytic ileus in man must be of the nature of a reflex inhibition depending on the integrity of the reflex arc. This would explain the occasional develop-

ment of ileus after a severe injury to a limb or after a simple abdominal operation. Spinal anesthesia acts by cutting off this reflex arc by (1) stopping the afferent stimulae, and (2) by blocking the efferent inhibitory splanchnics through the rami communicantes.

SUMMARY

A case is reported of paralytic ileus occurring in a patient with a megacolon which was completely relieved by spinal anesthesia. The conclusion is drawn that spinal anesthesia is a valuable method of treatment in only the paralytic type of ileus; and caution should be used in the proper selection of the case.[1]

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ACUTE STREPTOCOCCIC LARYNGITIS IN CHILDREN*

REPORT OF CASES

By Roland P. Seitz, M. D.
San Franciso

STANDARD reference books make little mention of streptococcic laryngitis, yet this disease is not infrequently seen and when severe it may cause alarming symptoms and rapid death. The reports of a severe and a mild case of this disease follow.

REPORT OF CASES

Case 1.—K. N., male, age fourteen months, was attended during a gastro-intestinal disturbance in January, 1925, and a few months later during a mild upper respiratory infection. He had otherwise always been healthy and was breast fed until the age of eleven months.

April 26, 1925, the child spent the day at a beach. That evening he awakened at 10 p. m. with hoarseness and some difficulty in breathing. At midnight the symptoms had increased sufficiently to cause mild concern, but they were not alarming. Steam inhalations were ordered.

When first seen at 4 a. m., April 27 (four hours later), the patient was in distress. Respirations were rapid because of severe inspiratory obstruction, and the baby was pallid. Sufficient atropin was given to dilate the pupils, but there was no other effect. The patient was transferred to the hospital.

At 5 a. m. respirations ceased and the baby became livid. Oxygen, artificial respiration, and stimulation with caffein were employed, and the general condition improved. A direct laryngoscopy was done by Dr. S. v. Christierson, who made the following notes:

Smallest Jackson laryngoscope passed. The epiglottis is greatly swollen and congested. There is some superficial ulceration at the base; no membrane. Both arytenoids greatly swollen and red. The left vocal cord is normal except for slight congestion; the right is not seen because of local swelling of the false cords. The space between the cords is well opened when the epiglottis is retracted with the laryngoscope, and it is evident that the patient's dyspnea is due to the sucking in of the swollen epiglottis and arytenoids.

Cultures were taken directly from the larynx. They were subsequently reported negative for diphtheria, and a nonhemolytic streptococcus was the predominant growth.

At 8 a. m. intubation had proved unsuccessful and tracheotomy was done with striking improvement in the breathing. Diphtheria antitoxin totaling 30,000 units was given intramuscularly, but the patient became increasingly toxic, the fever mounted to 40.8 C. (105.4 F.) by rectum, and death occurred at 3:30 p. m.; about seventeen hours from the onset of the illness. Necropsy was not done.

Case 2.—J. W., male, age three years, had never before been sick. He was given diphtheria toxin-antitoxin when one year old, but had not subsequently been tested for immunity. He was seen January 10, 1928, because of a slight cold of twenty-four hours' duration. During the previous night he awakened with hoarseness, and this was persistent. There was slight difficulty in breathing and the throat was moderately inflamed. Fever was slight. Later, the same day, the dyspnea increased and the patient entered the hospital. His color at this time remained good; his temperature was 38.8 C. (102 F.) rectally.

After direct laryngoscopy Doctor Christierson made the following notes:

There is edema of the vocal cords and the tissue of the glottis excepting the epiglottis, which is nearly free from it. No membrane is seen and there is no ulceration.

Throat cultures were twice negative for diphtheria. A direct culture from the larynx on a Loeffler slant showed mixed growth of various types of streptococci among which *Streptococci viridans* predominated. A moderate number of hemolytic streptococci (Beta of Brown) were seen, and there were also some colonies of nonhemolytic streptococci (Gamma of Brown). The blood count showed 11,000 leukocytes, and 79 per cent of these were polymorphonuclears.

Hoarseness and varying degrees of dyspnea continued for about forty-eight hours more, but the latter was not sufficiently severe to cause more than slight asphyxia. The temperature was essentially normal on the third day of the disease.

The grandmother of this patient, with whom he had been in close association, became similarly ill at about the same time and ran a nearly identical clinical course. She did not have a direct laryngoscopic examination.

COMMENT

Any virulent streptococcus may cause laryngitis, but such disease is often the direct extension downward of an acute tonsillitis or peritonsillar abscess. It may occur as a complication of scarlet fever and in influenza. Leigh[1] reported four cases with three deaths during a small epidemic of the latter. The symptoms in these cases were

[1] Since writing this paper we have had another case of preoperative paralytic ileus secondary to a generalized peritonitis from a perforated appendix, occurring in a man ninety years of age. Spinal anesthesia produced active peristalsis with the expulsion of enormous amounts of gas and fecal matter, so that the operation of appendectomy and drainage was technically simple. The patient made a complete recovery.

* From the Department of Pediatrics, Stanford University Medical School.

nearly identical with those described above in Case 1. In one of Leigh's cases it was found at necropsy that the swelling had closed the epiglottis and greatly distorted the vocal cords; in another the cords were the site of the greatest inflammation; and in the third case there was some degree of laryngitis, but obstruction was maximal near the bifurcation of the trachea.

In a severe case the symptoms of primary streptococcic laryngitis may be indistinguishable from those of laryngeal diphtheria, and it is probable that not a few are so diagnosed. All of Leigh's cases and one of the author's was given diphtheria antitoxin.

In infants and small children direct laryngoscopy is useful because it allows inspection of the diseased site, and this is otherwise impossible. Such inspection will differentiate the noninfectious types of laryngitis, and the absence of a membrane together with the striking fiery-red appearance of the edematous mucous membranes will suggest a streptococcic infection. Laryngoscopy permits the taking of direct smears and cultures, which will enable positive diagnosis. When done by a skilled operator, laryngoscopy will not superimpose any noteworthy degree of traumatic inflammation and an anesthetic is not required.

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MULTIPLE POLYPS OF JEJUNUM—WITH INTUSSUSCEPTION*

REPORT OF CASE

By William W. Washburn, M. D.
San Francisco

BECAUSE of the infrequency of intussusception of the small bowel, as well as the rarity of polyps in this location, the following case is presented:

REPORT OF CASE

Patient an Italian, male, laborer, age twenty-one. Entered the Southern Pacific General Hospital Sunday night at 11:30 p. m., August 11, 1928, and was seen shortly after entry to hospital.

History of Illness.—Patient stated that he was first taken ill thirty-six hours before entry. First symptom was severe pain across the upper abdomen which came on a half-hour after eating a hearty fish dinner. He vomited undigested food shortly after the onset of pain, and has vomited almost constantly since. Vomitus became bile-stained, but after twenty-four hours was of a brownish color with foul odor. He vomited castor oil which had been taken soon after he became ill. He was given an enema by a local nurse, after he had vomited the castor oil, which was followed by a small bloody bowel movement. Pain became generalized over the entire abdomen the night before entry to hospital. On entrance the pain was localized more in the left side of abdomen, opposite the umbilicus, and recurred at frequent intervals in paroxysms.

Patient stated that he had had 'spells of stomach upset" for past eighteen months characterized by abdominal cramps and nausea, occasionally by vomiting. These spells lasted from fifteen minutes to two hours, and in the past were always relieved by taking castor oil. Had never had bloody, clay-colored or tarry stools. He had no history of urinary frequency, burning, tenesmus, or hematuria. Had never been jaundiced. Appetite had always been good and had no constipation. Had always been very thin. Recalls no serious illness. No accidents. No operations.

Examination.—Showed a frail and somewhat emaciated patient apparently in severe pain with drawn facies. Skin dry. Tongue dry and furred. Breath, foul odor. Head, neck, chest, heart, etc., essentially negative.

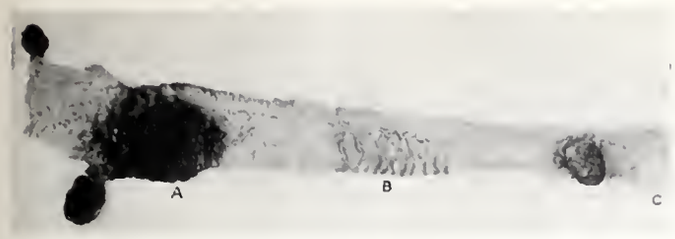
Abdomen.—There was a noticeably rounded tumefaction just to the left of the umbilicus. No definite peristalsis was noted. Palpation showed rounded mass about the size of a large grapefruit, slightly movable and extremely painful to palpation, which did not extend to the loin or costovertebral angle. No other masses felt. No tenderness in the epigastrium or at McBurney's point. Percussion note over the mass, flat. Upon rectal examination no masses or loops of distended bowel were felt. Pulse rate, 130; poor quality. Respiration, 38. Temperature, normal. White blood count, 4600—white cells with 72 per cent polymorphonuclears, 20 per cent lymphocytes, and 8 per cent large and transitional mononuclears.

Preoperative Diagnosis.—Intestinal obstruction. Volvulus, intussusception or old peritoneal bands were considered as causes in the order named. Because of dehydration and poor condition, the patient was given 1500 cc. of normal salt solution, also gastric lavage. Preoperative hypodermic of morphin grain 1/6 with atropin grain 1/200.

Operation was done under nitrous oxid-oxygen anesthesia. A long right rectus incision was made. Upon opening the abdomen there was a moderate increase of peritoneal fluid which was clear and straw-colored. A large purplish discolored mass of greatly distended intestine was seen when the rectus muscle was retracted medially. The entire mass was delivered outside the abdomen, after enlarging the incision to about fifteen centimeters in length, and it was immediately seen that intussusception had occurred high up in the small bowel. Upon closer examination it was apparent that there were multiple intussusceptions of the upper portion of the jejunum. The two lower ones were reduced by gentle traction. The upper and larger one was irreducible and greatly discolored. The lower one, which was reduced, consisted of a double invagination, so that the bowel wall below, after reduction, was greatly discolored and stretched to the size of a coat sleeve. On palpation a few inches above the irreducible mass a small tumor was felt resembling impacted bowel content. Movement of the mass was restricted and the bowel wall definitely dimpled in with downward traction on the mass. Three similar masses were also felt lower in a portion of the intestines which had been reduced of a double invagination. Because of the one irreducible intussusception present, as well as the poor nutrition of the bowel below, which also contained tumefactions, a resection was necessary. (Patient's condition was fair and 1000 cc. of 5 per cent glucose and Ringer's solution was given intravenously during operation.) Resection of a little over five feet of jejunum was done commencing above the first tumor mass which was felt about twelve inches from the duodenum, and lateral anastomosis done as quickly as possible. Abdomen was closed in the usual manner.

Following operation patient was given stimulants and large quantities of glucose and normal salt solu-

* From the Department of Surgery, Southern Pacific General Hospital, San Francisco.



Portion of jejunum resected showing polyps: A, irreducible invagina ion; B, invagination; C, double invagination below this point.

tion intravenously and subcutaneously. A rather severe stomatitis developed several days after operation, but cleared up readily with mouth-wash and application of Berwick dye. Several mild spells of diarrhea have been controlled by selected diet and small doses of tincture of opium by mouth. Patient left the hospital after three weeks. His appetite since leaving has been good, the bowels regular. He feels well and has gained twenty-two pounds. Cases in which long resection of small bowel has been done tolerate best a diet poor in fats, but rich in carbohydrates with moderate amount of proteins. Milk is not well tolerated, often passing rapidly through the intestines after ingestion.

This patient was seen four months after operation, was in excellent health, bowels regular, and his weight fifteen pounds above usual.

Pathological Report.—Multiple polypi. No evidence of malignancy. W. T. Cummins, M. D.

Sigmoidoscopic examination before discharge from hospital showed no evidence of involvement of lower sigmoid or rectum. X-rays of colon (barium enema) showed no filling defects.

COMMENT

After a review of the literature the infrequency of multiple polyps in the small intestines is appreciated. Most cases occur in the rectum and colon and occasionally in the stomach.

Ewing [1] wrote, "The ileum and jejunum are rarely affected," and mentioned Hauser, Kaufman, Lubarsch, Miemack, and Petrow as having reported cases.

E. L. King [2] in reviewing 119 cases of benign tumors of the small and large intestines reported no cases of papilloma in small intestine. Warwick,[3] reports one case in which four polyps were found in the small intestines, together with two in the large intestine.

Z. Cope [4] (*British Journal of Surgery*, 1922) reported a case of multiple polyps of the small intestine in which intussusception had occurred three times. He was misled at the first operation, believing the papilloma to be impacted bowel content, so after reducing the intussusception the wound was closed. At two succeeding operations the true nature of the tumors was discovered and the papilloma resected.

Petrow [5] reported an operation for resection of papilloma of ileocecal valve, ileum, and jejunum which had caused intussusception.

W. L. Peple [6] reported a case of polypoid tumor the size of a walnut, with a moderate-sized pedicle that had caused intussusception of the ileum.

Brenner and Denke [7] reported a case of polyps of the small intestines that had caused intussusception. In their case, resection of 250 centimeters of intestine was done. Patient recovered with "no digestive disturbances."

SUMMARY

1. The case herewith presented is of multiple polyps of jejunum causing intussusception in which over five feet of jejunum was successfully resected.

2. Intussusception of the small bowel is exceedingly rare.

3. Multiple polyps are usually found in the large intestines. The small intestine is rarely affected.

384 Post Street.

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MESENTERIC CHYLOUS CYSTS*

REPORT OF CASE

By L. A. Alesen, M. D.
Los Angeles

THE subject of true chyle cysts of the mesentery is one concerning which there was, until the last eight or ten years, comparatively little on record in medical literature. Credit for the first formal article giving a more or less complete description of this condition is generally given to Rokitansky, who wrote at some length concerning it in 1842. Miles F. Porter [1] reported twenty cases in March, 1906, including one of his own. In 1912 Emmanuel Friend [2] summarized the world's literature up to that time, giving a report of fifty-two authentic cases. A year later A. L. Benedict [3] made some additions and corrections to Friend's list, and reported a total of ninety-six cases, with the statement that perhaps two hundred cases might be found by extensive search. Later writers have added individual case reports.

An idea of the rarity of this condition in general hospital work may be gained from the fact that a search of the files of the Los Angeles General Hospital by one of the record clerks failed to reveal a single instance of its occurrence prior to the one herein reported. The records were examined as far back as 1912, and the only condition recorded as a mesenteric cyst was a myxomatous sarcoma of the mesentery operated upon by Dr. O. O. Witherbee in 1921.

Etiologically, nothing is positively known concerning the actual cause of these true chyle cysts of the mesentery. It has been thought that such

* Read before the staff of the Los Angeles General Hospital, October, 1928.

cysts resulted from a plugging of one or more of the minor lymphatic vessels, which anastomose after leaving the intestine, and that this plugging causes a gradual dilatation, resulting in cyst formation. As to age and sex, the occurrence in Benedict's series was in all ages, and about equal as to sex.

There are no pathognomonic symptoms or signs by means of which this condition can be positively diagnosed. There is most often a syndrome of vague abdominal pain, associated with the later development of a tumor mass which is usually quite freely movable, most often in the ileocecal region, quite soft and not tender.

The treatment of mesenteric chylous cysts may be summarized by the words of Porter in the article mentioned above:

"The treatment of mesenteric chylous cysts consists in their removal by that technique which seems best adapted to the case in hand after it has been studied through the open abdomen."

Mikulicz divided their treatment into: (1) aspiration; (2) marsupialization; and (3) extirpation.

REPORT OF CASE

Dolly W., girl, age five years, entered the service of Dr. J. L. Kirkpatrick at the Los Angeles General Hospital on March 2, 1927, complaining of pain in the abdomen. Two days previously the child had become ill with this pain in the abdomen. Temperature was 102.6 at that time. She did not vomit. Had had several similar attacks during the past two years, with the exception that fever did not accompany them. Had not been constipated. Past history was otherwise unimportant. Family history was irrelevant.

Physical Examination.—Patient was a girl about five years of age, lying on her back with the thighs flexed, apparently quite toxic, and in considerable pain, which pain was referred to the abdomen. General examination was negative except for the abdomen. The abdomen was moderately distended throughout, with considerable rigidity in all quadrants. Tenderness was present throughout, although perhaps more marked over the lower quadrants. There was the suggestion of dullness in both flanks. No mass was palpable. Temperature, 102; pulse, 132; respirations, 24.

Laboratory Findings.—White blood count: 28,000, with 85 per cent polymorphonuclear neutrophils. Urine: Trace of albumin, with many pus cells. No sugar or blood.

Diagnosis.—General peritonitis, probably secondary to ruptured appendix. An immediate laparotomy was performed.

Operative Findings.—Considerable thin seropurulent fluid was free in the peritoneal cavity. Some fibrinous exudate was present on the coils of small bowel. There was a large cyst of the mesentery occupying most of the lower abdomen. It was multilocular, about the size of two grapefruit, and was located about twelve inches from the ileocecal valve. It was so situated in the mesentery as to lie beneath a coil of gut about six inches in length, and apparently the blood supply of that portion of the bowel passed through the cyst. The two locules of which the cyst was composed communicated with each other under the coil of bowel described.

It was not possible to extirpate the cyst entirely without resecting that portion of the ileum involved. With the child's condition poor, it was decided to adopt more conservative measures. Consequently the cyst was aspirated of its contents—about six or seven hundred cubic centimeters of a milky fluid—the redundant walls excised and their free borders closed with No. 1 plain catgut.

The abdomen was closed in the routine manner, and two rubber tissue drains were left in the pelvis.

The patient experienced a somewhat complicated postoperative course from extra-operative conditions, such as a streptodermia, a chalazion and a course of measles, but left the hospital with the abdomen completely closed and no signs of recurrence at that time.

The pathological report of examination of the portions of the cyst wall removed and of the fluid, as made by Dr. George Maner, confirmed the diagnosis of mesenteric chylous cyst.

1675 West Santa Barbara Avenue.

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University of California Institute of Tropical Medicine to Open Next Year.—Tentative plans for the University of California Institute of Tropical Medicine, recently announced at the Hooper Foundation, research center of the medical school, provide for opening lectures in the summer of 1930, according to Dr. Alfred C. Reed, professor of tropical medicine.

The purpose of the new organization is threefold, Doctor Reed explains. It will provide the only western center for the treatment and study of tropical diseases, and for research in general problems of health and food preservation in the tropics or locally as a result of conditions having their origin in the tropics.

Research, public education, and treatment of individuals suffering from tropical diseases are given as the three phases of work to be carried on.

Under research, are included the practical problems of health and disease in tropical countries; the problems arising from shipping between the United States and tropical countries, both as regards cargo, and the personnel of the ships, passengers, and crew; and the problems presented by epidemics of tropical diseases such as meningitis, cholera, yellow fever, etc.

Under public education Doctor Reed lists four lines of endeavor. First, regular courses in tropical medicine for graduate physicians from every part of the world. Second, courses in tropical public health service for nurses going to tropical countries or on ships touching at tropical ports. Third, courses on tropical medicine for students in the University Medical School, as desired. Fourth, public instruction in tropical hygiene and public health through popular lectures and a course for prospective travelers, merchants, soldiers, and others intending to visit tropical countries.

Under treatment of individuals is included all such treatment as cannot well be taken care of elsewhere. It is thought that the university center will care for people in all parts of the West, as the next closest center for the treatment of tropical diseases is in Galveston. Another is located at New Orleans, but the rest are on the Atlantic seaboard. None of them, Doctor Reed says, are as wide in scope as that planned for the University of California.

Concerning the shipping problems to be studied, Doctor Reed explains that San Francisco, Los Angeles and other Pacific Coast ports are unloading places for innumerable cargoes of tropical goods, from copra, oil, forest products, and foodstuffs on down. This commerce, he says, not only offers a means of entry for tropical diseases and parasites of many kinds, but is itself often hampered by the action of parasites in cargoes en route. This is particularly true in the case of cargoes of foodstuffs, recent reports having been received of the spoilage of large cargoes of cocoa-beans by an insect parasite.—*U. C. Clip Sheet.*

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

PRESENT STATUS OF THYROID SURGERY

A. B. Cooke, Los Angeles.—Some startling statistics showing a general increase in surgical mortality rates during recent years were given in the address of the chairman of the section on general surgery of the California Medical Association at the 1928 Sacramento session. Thyroid surgery headed the list.

"The mortality rate attending goiter operations has increased 250 per cent in the past two decades."

Two hundred and fifty per cent! Can it be true? At first glance one is inclined to reject the statement as impossible. But a little reflection will change this attitude. Prior to twenty years ago goiter surgery was done almost exclusively by a very few expert operators who had gradually reduced the mortality rate to approximately 5 per cent. In their hands the decrease has steadily continued until now it does not exceed 1 per cent. At the present time, however, this class of work is undertaken by practically everyone who calls himself surgeon. And the number is legion. Result: the five per cent rate of two decades ago has become twelve and one-half per cent—or more!

From this point of view the present status of thyroid surgery is certainly most deplorable. And the perfectly obvious remedy may not even be intimated without unloosing a flood of criticism and reproach upon the intimater's head. One thing at least may be said by way of warning, that if the profession itself does not find the remedy and apply it, it is inevitable that it will sooner or later be called upon to face conditions and restrictions little to its liking. Such a state of affairs is intolerable and cannot be hidden indefinitely.

In happy contrast to the foregoing it may be said that the present status of thyroid surgery from the scientific standpoint is all that could be desired. While, technically, operations upon the thyroid gland are as delicate, difficult, and dangerous as any known to surgery, they have been perfected and standardized to such a degree that in skilled hands they seldom give rise to real concern. It is not the operation itself which is responsible for the occasional disaster, but the condition of the patient upon whom it is performed. Proper study of the patient as well as the goiter, careful evaluation of symptoms, thorough unhurried preparation—in a word, surgical judgment—these are the factors of safety and success.

Today it has come to be generally accepted that surgery offers more to the goiter patient than all other methods of treatment combined. No one disputes that the ubiquitous and much abused iodin is a valuable remedy when employed with full realization of its limitations and with the knowledge ever present that it is as potent for harm as for good. And no one denies that benefit may be expected from radiation therapy in properly selected cases. But for prompt and permanently curative results it is conceded that surgery is the method of treatment *par excellence*.

* * *

H. H. Searls, San Francisco.—Doctor Cooke's comment on the increasing mortality rate in goiter surgery is a warning which should be heeded by the medical profession as a whole. To the surgeon who only occasionally is called upon to remove a goiter, the operation is filled with difficulties. Unfortunately he is apt to be handicapped by inexperienced assistants. Thus the occasional operator is placed at a disadvantage before he starts by lack of teamwork, and there are few operations in surgery where a well-trained team can prove of more value to the surgeon than in partial thyroidectomy. The operation, instead of being a common and routine procedure carried through in a standardized way by a team familiar with each step, is filled with embarrassing situations such as repeated profuse hemorrhages, recurrent nerve injuries, etc.

Further, in a well-established goiter clinic, important pre- and postoperative care being familiar to all who come in contact with the patient, proceeds on its standardized course, planned to the last detail for safety and comfort.

* * *

Charles E. Phillips, Los Angeles.—This subject presents a triple challenge to the doctor: first, his knowledge; second, his skill; and finally, his honesty.

The science of thyroid surgery has made wonderful advance during the past twenty years, not only in the diagnosis and management of these cases, but also in the mortality attending this difficult operation. In the better institutions, and among the better surgeons, the mortality rate has been reduced to a fraction of what it was two decades ago. The average mortality rate, however, has increased to a startling degree. The answer is not hard to find. Where one was doing thyroid surgery twenty years ago, two hundred and fifty are doing it today. The mortality has kept pace with the numbers.

There is no lack of knowledge, and the doctor of today is better trained than formerly. The primary cause is lack of honesty. The doctor is ashamed to admit his unfitness for this work, or is enticed by the fee. It comes back in either case to a question of honesty.

This is no reflection on medicine. How long would a bank or a business house survive if no accounts were kept of the profits and losses? All honor to the members of the regular medical profession who have worked unceasingly and unselfishly for the best interests of the patient. This character of work has been responsible for enormous advances in the science and art of medicine.

The fact that there has been no accounting for results has led the careless and unscrupulous to take advantage of a people who have no way of differentiating the competent from the incompetent.

The remedy is: That the doctor's record of *training, experience,* and results be open to the prospective patient, or interested relatives. We require such safeguards to be placed about our financial institutions that people may not be swindled out of their money. Since when has human life become so cheap that no record need be kept of results?

* * *

Clarence G. Toland and William P. Kroger, Los Angeles.—Few of the many problems that have confronted the surgeon in the past twenty years have received as much consideration as the treatment of thyroid pathology.

The management of the cases as well as the operative technique have been developed to such a degree that at the present time the operation has become relatively safe. In experienced hands the mortality is about one per cent. Fortunately the vast majority of goiter cases are operated upon by the specialist.

The value of iodin in the preoperative preparation of the thyrotoxic cases cannot be too greatly stressed, and in the very toxic cases it should be administered liberally. Sixty to eighty minims of Lugol's solution a day may be given.

In many cases of toxic adenoma iodin is of definite value, but these should only be treated in a hospital, where they can be closely observed.

Iodin is also given postoperatively both by rectum and by mouth when a toxic reaction is anticipated.

Digitalis is only of definite benefit when there is a markedly damaged myocardium with auricular fibrillation and decompensation.

The basal metabolic rate should be taken in all cases of goiter. If properly taken it not only accurately indicates the degree of toxicity in hyperthyroidism, but frequently reveals an unsuspected hypothyroid condition. The latter can then be treated with thyroid extract before operation.

All cases should be metabolized six months after operation; or earlier if toxic or hypothyroid symptoms are suspected. Not infrequently in exophthalmic goiter, a more or less transient postoperative hypothyroidism develops; usually during the first two months after operation. This is more often observed in male patients. The condition can readily be controlled by thyroid extract.

The operative technique of the present day has been so perfected and standardized that practically all surgeons use the same method, with perhaps some individual minor variations. Some have discontinued the use of drainage as routine in thyroidectomy, but there is little to be gained by this and often a surprising amount of serosanguineous fluid will exude from a small Penrose drain.

The excised goiter specimens are carefully examined at the time of operation for parathyroid glands. If any are discovered they are implanted into the depths of the wound.

Skin clips for skin closure produce the best type of scar. Desiccated turtle bile dusted over the incision has been advocated for producing a thin scar, but it is of little value.

The end-results in thyroid surgery are exceptionally good, and particularly is this true in cases where the duration of the toxicity has not been sufficiently long to produce permanent cardiac damage.

In hyperthyroid cases 90 to 95 per cent have complete relief of symptoms at the end of a year.

Influenza "Preventives" and "Cures" Are Fraudulent, Federal Drug Official Warns.—"It is the intention of the Food, Drug, and Insecticide Administration to take immediate action under the Food and Drugs Act against all preparations represented by label or by circular accompanying the package as preventives or treatments of influenza, la grippe, pneumonia, and related diseases," W. G. Campbell, Director of Regulatory Work of the United States Department of Agriculture, said today.

"There is a widespread and probably a fully justified public apprehension about influenza, and some manufacturers have not hesitated to take advantage of this situation by advertising their preparations in every available quarter as preventives or cures for the disease. Unfortunately the Food and Drugs Act does not reach false advertising statements appearing in the press, or in any advertising medium not included with the package of the preparation itself. The food and drug enforcing authorities are therefore powerless to check such misleading advertising, serious as the consequences may be in the case of those that are led to depend on such ineffective products and neglect the hygienic precautions recommended by public health authorities, such as isolation, rest, sleep, diet, and proper ventilation.

"It is a fact generally accepted by medical authorities, based on world-wide medical experience," added Mr. Campbell, "that there is no known drug or combination of drugs which will prevent or cure influenza. Products labeled as effective for this purpose will unhesitatingly be classed as misbranded within the meaning of the Food and Drugs Act and treated accordingly.

"It may not be amiss to add," said Mr. Campbell, "that manufacturers are usually cautious about putting unwarranted claims upon the labels of their products, knowing that they render themselves liable under the Food and Drugs Act, and those who are inclined to take advertising claims at face value will frequently find that the labels themselves, or the circulars accompanying the packages of the drugs, do not repeat these claims."—*The Journal of the Arkansas Medical Society,* February 1929.

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

PRESENT STATUS OF PUBLIC HEALTH LEGISLATION

Special Meeting of the Council of the California Medical Association.—The California legislature is still in session at the date of this writing. The many public health measures which were enumerated last month in the Miscellany section of CALIFORNIA AND WESTERN MEDICINE are being watched by members of the executive and legislative committees, and this surveillance will continue until the legislature adjourns. It is not necessary to again discuss in detail the many different bills.

Comment will be here made on some of the measures which came up for discussion at the special meeting of the Council of the California Medical Association, which was held at San Francisco on March 16; because these are the measures in which members of the California Medical Association should have particular interest, and it is proper that the members should know the conclusions reached by their colleagues whom they have delegated to represent them in the Council.

* * *

Vocational Standards Department Bill—Other Departmental Consolidations.—This bill as originally drawn, in the days to come in case a governor appointed a department director who was not kindly disposed to or who had poor vision of public health and medical professional standards, could have been a serious menace to all the standards which the members of the California Medical Association have worked for during the last twenty-five to fifty years. The officers of the California Medical Association were faced with a delicate situation in regard to this bill. Under ex-Governor Richardson's administration a consolidation of state executive departments and bureaus had been agitated and inaugurated, and under the present administration and Governor Young's leadership this consolidation has been successfully carried out with a large number of state agencies, and with the approval of the state at large. The right of the state to do its work in most efficient and economic fashion cannot be gainsaid. The difference of opinion arises on the subject of the procedures to be used.

The medical profession, two years ago, therefore took no exception to the coördination of the various departments of the State Board of Health, in which the executive officer, formerly known as its secretary, now acts as the director of the department, and has a place in the Governor's advisory board or cabinet.

Nor can the medical profession take a legitimate stand that would appeal to citizens at large, against the effort to group a dozen different state examining boards into one department. Provided, however, that the one examining board which above all others has a graver responsibility in the protection of the public health of California shall not have its powers so curtailed or jeopardized as to imperil the best public health interests of California.

It was on this point that conferences were held with the administration; and the general viewpoints of the officers of the California Medical Association, as expressed in Council meetings and printed in this journal, were presented to the representatives of the state administration. It is gratifying to know that the officials representing Governor Young considered every proposition presented by the California Medical Association committees in kindly fashion; and gave assurance that the safeguards suggested would be presented to the legislature as amendments worthy of incorporation into the bill.

As matters stand at this writing the administration proposes to have a department of professional and vocational standards, but its provisions will permit the California Board of Medical Examiners practically to have the same integrity and authority as existed before the bill was drafted.

For the reasons above given, the Council of the California Medical Association will not oppose the plan to have a department of professional standards, provided the safeguards agreed upon shall be made a part thereof. In passing it may be stated that it is reasonable to assume that these dozen or so examining boards would not be permitted to run loose, as it were, when practically all the other executive agencies of California have been grouped into departments. The question could therefore be fairly put, that if such a bill

as is now proposed were brought into being under an administration less kindly disposed to scientific medicine than that of Governor Young, as to how badly the California Board of Medical Examiners might then fare. The foregoing should make evident the fact that the various officers and committees of the California Medical Association have been alert to their responsibilities on behalf of the Association and its members, and have used every effort to protect the standards of licensure as applied to medical profession and public health interests. No special action is needed on this measure unless the call reaches the county units from the authorized officers of the Association.

* * *

State Medical Library Bill.—This bill, which if enacted, would bring into being a medical library at Sacramento as one of the units of the state library there located, has had a narrow escape from early death. It was necessary to greatly modify the original draft to make it better fit in with the agencies already existing for library work. Unfortunately this was not discovered until the beginning of the second portion of the legislative session, during which period only a very limited number of bills may be introduced, and then only with the sanction of two-thirds of the members of either house. In spite of this heavy handicap it was possible, after an effort of some days, to have the bill reintroduced in its new form, and it is hoped, inasmuch as every effort was made to have the measure conform to all administration requirements, to have it go on to passage.

This medical unit of the state library would come into existence with an appropriation of about $100,000, allocated to the library board from reserve funds which are not needed by the California Board of Medical Examiners. It is fitting that these moneys received from doctors should be allocated to a medical library agency that will help make better doctors, who will thus be able to give better service to the citizens of California.

Every county society and every member of the California Medical Association should give this measure his fullest support. County societies should pass resolutions of endorsement, and should send copies thereof to every state senator and assemblyman. Members of the profession who believe in giving real support to an enterprise of this kind will also write letters, sending a copy to each senator and assemblyman, or at least to the senators and assemblymen from the counties in which they practice. The March issue of this journal, on pages 215 and 216, gave a complete roster of the state senate and assemblymen, with Sacramento addresses. Copies of all such letters of endorsement should also be sent to Governor C. C. Young, State Capitol, Sacramento.

The new number of the library bill is Senate Bill No. 842. Refer to it in your letter as: "S. B. No. 842, Senator Canepa, State Medical Library Bill."

The passage of this state medical library bill would make it possible for every member of the profession, whether located in an urban or rural center, to have come to him the latest and other literature on any subject to which he wished to give further study. In essence it means making possible for every physician who so desires, a partial postgraduate medical course, to be taken at his own home and at his desk, in his leisure moments. That is something, the realization of which is devoutly to be wished for, and it is sincerely hoped that the members of the California Medical Association will rally to the support of the measure in such generous fashion that the legislators will be glad to vote for its enactment.*

* * *

Other Bills.—Some of these have been discussed in this column in previous issues. California and Western Medicine of March indicated how copies of these bills could be secured by county units and members of the California Medical Association who were interested.

Members of the Association who have suggestions to offer should feel free to send them to the central office of the California Medical Association at San Francisco, so that the suggestions may be forwarded to the proper officers of the Association for consideration.

INDUSTRIAL INJURIES TO COUNTY EMPLOYEES

Cities and Counties Come Under the Industrial Practice Act.—In the October 1927 issue of this journal, page 527, mention was made of the obligation which legally rests on cities and counties and which requires them to give proper professional care to industrially injured employees who come under the provisions of the State Industrial Practice Act of California.

Mention and criticism were made of an improper custom which had grown up in some counties, whereby such industrially injured county employees were being placed under the professional care of nonsalaried attending physicians and surgeons of county hospitals, the counties in that way evading the payment of the professional fees laid down in the industrial practice law.

* * *

A Case in Point.—In the July 1928 issue of California and Western Medicine, page 46, under the caption "The Sale Price of a Doctor's Services," a case in point was cited, and it was stated that further comment might be later made of the outcome of the effort of the writer to have the rich county of Los Angeles meet an obligation which was legally incurred but which certain of its legally elected officers felt the county was not obligated to pay.

The principle at issue was plain. A county employee in a rural district, working in the road

* The Senate committee to which the State Medical Library bill "S. B. 842 (Senator V. C. Canepa)" was referred on March 15, was the "Senate Committee on Governmental Efficiency." Its members are: Senators Mueller (chairman), Baker, Breed, Cobb, Garrison, Jones, Herbert C. Maloney, Murphy, Nelson, Tubbs, and Weller.

It would be good policy to send a copy of letters of endorsement of the above bill to each of these committeemen, whose names and addresses appear in the March California and Western Medicine, page 215.

department, suffered an eye injury. A foreign body lodged on the cornea, and the man was sent to the physician of the district. The injury was rather severe. A nasty ulcer of the cornea developed, and the man was sent to the writer, after the attending physician was told by the patient that he had been under the writer's previous care. A report was sent in concerning the injury. The man remained under treatment until the ulcer healed. It should be of interest to note what followed.

The injury took place on March 23, 1928; the patient came under the writer's observation on March 27, 1928, and was discharged on April 13, 1928.

When the statement for services was sent to the county, a reply letter was received from the county auditor stating that inasmuch as the patient, after coming under the writer's care, had been told to go to the Los Angeles County Hospital, and had not done so, the claim of $29 against the county could not be recognized.

To the writer this seemed a very good case in which could be tested the obligation of a county to obey the Industrial Practice Act of California. Accordingly, he put before the Industrial Accident Commission of California, Claim No. 10363 against the county of Los Angeles and William Murphy, petitioning that an order be issued ordering the county of Los Angeles to pay the bill of $29 for the professional services which had been rendered.

After some correspondence, an order for a hearing was finally secured, the Commission setting October 3, 1928, as the date for the hearing, at which a representative of the county counsel's office, the writer, the patient, and other witnesses appeared.

The legal representative of Los Angeles County put forth a mass of legal technicalities such as one would expect in a controversy of this kind, and after the testimony was in, the case was taken under advisement by the referee for the Commission. At the hearing the writer refused any compromise of part payment, because he wished to prove that a county had no rights over and above citizens when it came under the operation of a general law of the state; and also to establish the injustice of asking medical men who were willing to give gratuitous service to indigent citizens to extend the same gratuitous service to one of the richest counties in the United States for its salaried employees.

After some delay and further correspondence the Industrial Accident Commission on date of December 12, 1928, rendered its verdict, which in effect ordered the county of Los Angeles to pay the $29. However, no check appeared from the county auditor's office. On December 28, 1928, a legal representative of the county filed a petition asking the Industrial Accident Commission to grant a rehearing of the case, citing a large number of supposedly legal reasons why such rehearing should be granted. On January 26, 1929, the Industrial Accident Commission handed down a ruling denying the petition for the rehearing. Request was again made of the county auditor of Los Angeles to kindly pay the bill of $29 as per the order handed down, and finally on March 7, 1929, practically one year after the services had been rendered, a check for that sum was received, thus bringing the matter to a close.

* * *

Precedent of Payment Is Now Established.—The above details are given to show how tedious and how difficult it sometimes is to accomplish what would seem to be a simple matter.

The issues at stake in this case were so important that the writer was determined to see them through, because if a city or county could go in the face of the law of the commonwealth, to the detriment of interests of the medical profession, it was important that members of that profession should be made acquainted therewith in order that measures might be instituted to remedy such undesirable conditions. It is gratifying to know that the Industrial Accident Commission has now established this precedent, and it is hoped that attending physicians and surgeons at all county hospitals will hereafter feel free to insist on proper payment for professional services rendered to injured county employees.

* * *

New Procedure in Los Angeles County.—In connection with the above and in response to a resolution sent forward through the medical board of the attending staff of the Los Angeles General Hospital, the county Board of Supervisors recently issued a general order that county employees should no longer be sent to the county hospital, but should be cared for by physicians in private practice, the professional services to be paid for as provided in the fee tables of the State Compensation Fund. This action also establishes a precedent.

It is hoped that other counties of California which have called on nonsalaried attending staff members of county hospitals, who give gratuitous service to the indigent sick and injured, to also give professional services to county employees and other nonindigent county hospital patients, will modify such rules of procedure, and observe the statutes and ordinances having to do with county hospitals and industrial practice work.

Component county societies of the California Medical Association located in counties where the above and similar evils exist should take steps to bring such improper procedures on the part of county officials to the attention of the proper authorities so that this deplorable practice of misusing the altruistic services of medical men will come to an end in California. The medical profession cannot expect others to appreciate gratuitous professional services unless the members of the profession themselves respect such services.

ON CENTRALIZATION OF AUTHORITY IN SOCIETY COMMITTEES

Objects of Organized Medicine.—Medical societies came into existence as an expression of the desire of educated and high-minded medical men to secure the inspiration for better work that comes from contacts with their fellows; and because through the union and united effort which exist through organization, it is possible to advance in better manner the standards of scientific medicine, and thus promote its capacity to give a larger service to lay citizens and to the state.

A medical society fulfilling such aspirations must be more than an organization whose members simply pay dues and at meetings read occasional scientific papers. Dues and papers are a means to an end, but the social and fraternal contacts are also very necessary elements if a medical society is to measure up to proper standards of efficiency and be a true example of what is sometimes styled as the grouping of "organized medicine."

* * *

The Handicap of Individualistic Outlook.—The individualistic nature of the practice of physicians handicaps them in their medical organization work, because too often they fail to sense the importance of teamwork. This is not infrequently observed when a medical society committee appointed for this, that, or the other laudable purpose, holds its meetings, and the committee members indulge in so much discussion of secondary phases of their problems that little energy is left for what was supposedly the major reason for the committee's existence. It is therefore necessary in committee work to take stock of issues involved, plan a program based on such analysis, and then secure the coöperation of the committee members in fulfilling the program.

* * *

Committees Should Not Be Too Large.—It is at this point that knowledge of procedure based on experience with human tendencies and weaknesses comes into play. That is why in many cases a committee composed of three physicians who are in fairly good touch with one another, and who are willing to work to attain a certain end in which the members are interested, will often accomplish much more work than would have been the case had the committee consisted of five, seven, nine, or a larger number of members.

* * *

Councils or Directorates Should Not Be Too Large.—The same reasoning applies to a board of directors of a society. If the board of directors or council or whatever be its name, consists of too many members, the end-results are not apt to be as beneficial to the society in question as might have been the case had the governing board been a more compact and intimate group. The chief aim in medical organization procedures should not be an effort to have every group within a society represented on a governing board, but rather should strive to have the responsibility of government vested in a smaller group of capable men of proven loyalty to service and ideals. In such a smaller group there is a much more frank discussion than takes place in larger bodies where friendships are of only a casual or acquaintance type. With such frank discussion by working members, progress is nearly always possible. It is not necessary that we should all think alike, but it is desirable in medical organization work that our relations, one with the other, should be open and above board; frank and clear discussion taking place, and the final decision resting with those who have made the best presentation of issues, and then all alike working unitedly for the course decided upon.

* * *

Committees Should Organize Early.—The majority of county societies elect their executive officers in December and in January. The president usually announces his committees. County society secretaries who notify committee members of their appointments might well express in such letters the advantages of an early organization and survey meeting of the committee, so that the business for which the committee was appointed might be gotten under way, instead, as so often happens, of being laid aside for the succeeding December, when a report of a practically inactive committee is presented.

In special and other committee work it is also wise for a county secretary to send a memorandum of the resolution or other authority for the committee's existence, so that all committee members may the better comprehend the nature and scope of their special obligations and duties.

* * *

The True Measure of a Medical Society.—County societies which find they are not accomplishing all that is desired in medical organization work can well consider matters of the kind here discussed. Organized medicine needs strong medical society units, and strong medical societies can exist only where there is a loyal membership, with alert officers working under rules of organization favorable to efficient action. It is not the size of a medical organization that counts in a community, but rather the character of membership, and the manner in which the membership, through its officers, watches its local and general problems and solves them. In efficient medical societies most work is done by a comparatively small group of members who are willing to give of their time and their best energy in order to advance the interests of the profession. It is important, therefore, not to make boards of directors or committees of medical societies too large or otherwise cumbersome or awkward, if a medical society is to function to best advantage. Just as in business enterprises, so in medical societies it is best to have centralized authority with reward or penalty for service well or poorly done. Physicians have the same character and temperamental traits as have other human beings; and in executive and administrative work the same rules of selection and of procedure can profitably apply and be used in medical organizations as in lay business and organization enterprises.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Bacteriology

Certain Limitations of the Bacteriophage as a Therapeutic Agent.—During the past few years considerable interest has centered around the bacteriophage. This has been not only because of its large theoretical bearing on the science of bacteriology, but also because of its potential value as a therapeutic agent. While most of the earlier papers deal with the question of the *nature* of the agent responsible for the transmissible lysis of bacteria, an increasing number of papers have appeared in recent years bearing on the therapeutic application of the bacteriophage in a certain group of infectious diseases. Some of the latter reports bear no element whatever of encouragement, others carry the mark of great enthusiasm. The general trend of the results, however, particularly in the treatment of certain infections as, for example, bacillary dysentery, staphylococcus infections, typhoid, and *B. coli* infections of the urinary tract, seem to justify a certain degree of optimism.

While the brilliant results which some investigators have realized deserve careful consideration, it is nevertheless true that great care must be exercised in choosing bacteriophages destined for use in a given case. Bacteriophages vary greatly in *specificity* and in the degree to which they will attack, not only different species of bacteria, but strains of the same species. For example, a bacteriophage which will dissolve completely one strain of *B. typhosus*, may not attack another strain at all, or may only partially lyse such a culture. The same is true of bacteriophages for *B. coli,* staphylococcus and for other organisms. In a few instances, as for example, with 'phages active for dysentery bacilli, a bacteriophage active for one strain tends to be equally active for all other strains of the species. Such examples, however, are exceedingly rare, so that in the majority of infectious diseases in which the bacteriophage may possibly be of distinct value, we are concerned with bacteria which generally behave in a highly heterologous manner with reference to given bacteriophages. Since this is the case, it becomes obvious at once that in the vast majority of bacterial infections in which the use of a bacteriophage may be justified, the bacterium responsible for a given infection must first be tested for 'phage *susceptibility* against the various bacteriophages which a laboratory may have in its possession. Only in the event the particular bacterial strain responsible for an infection is completely lysed by one or more such bacteriophages is one at all justified in administering the bacteriophage as a therapeutic agent. The time may come when it will be possible to pool a sufficient number of bacteriophages to cover most of the individual strains of a given bacterial species and in this manner prepare what may amount to truly polyvalent bacteriophage suspensions for, let us say, *B. coli*, or for staphylococcus, etc. At the present time, however, there is probably no laboratory in the world prepared to put out dependable polyvalent products of this sort. Indeed, it is quite unlikely that the task of bringing a sufficient number of different bacteriophages together and that of working out satisfactory standards for such commercial products will make possible the distribution of reliable products of this sort in the immediate future. In the meantime, the only trustworthy procedure for the clinician is to have the organisms isolated from given infections individually tested for susceptibility to 'phage action.

It must not be assumed from what has been said that bacteriophage suspensions, even when suitably prepared, invariably yield a satisfactory therapeutic result. When proper bacteriophages are employed the results, in a certain group of infections, are frequently exceedingly good, but this is certainly not always the case. Further studies are necessary to understand why in some infections the results are little short of "miraculous," while in other infections of the same type, treated under seemingly the same favorable conditions, no influence whatever on the course of the disease is noted. Some of the factors which seem to hinder a favorable response have thus far only suggested themselves, and still need to be worked out. The attitude of the clinician should therefore be that of a conservative inquirer. He should not become too enthusiastic over individual successes, nor too pessimistic over several successive failures. He can be of considerable assistance to the interested laboratory worker by faithfully reporting to him his failures as well as his successes. It is only by hearty coöperation of the clinician and laboratory worker that the question of the therapeutic value of the bacteriophage can be satisfactorily answered. Such coöperation is facilitated by the fact that if no sharp therapeutic results are realized within several days, none may be expected, so that the results may be reported as positive or negative within the course of the first week. Only one or two doses of the bacteriophage are administered. No harmful effect of 'phage therapy has been reported, and there seem to be no contraindications to its use.

E. W. Schultz, Stanford University.
T. D. Beckwith, Berkeley.

Medicine

Perennial Hay Fever—An Etiological Classification.—The management of patients manifesting hay fever-like symptoms throughout the year is so directly dependent upon a knowledge of the underlying causes that some etiological classification should be attempted. Except for minor differences the symptomatology of perennial hay fever is essentially like that of its sister malady, the seasonal variety. Nasal obstruction, sneezing, and the presence of a thin, watery nasal discharge are present in both conditions. The occurrence of attacks throughout the year and a lesser degree of itching of the eyes and pharynx are distinctive of perennial hay fever. Because of the similarity in symptoms the designation hay fever has been applied to both the seasonal and nonseasonal forms of the affection. This designation as applied to the perennial disease, although well established in medical usage, is unfortunate because seasonal hay fever is usually a pollen disease. An analysis of the perennial cases studied during the past ten years has made it clear that a multiplicity of etiological factors may cause the symptoms of this type of hay fever.

The causes of perennial hay fever are chiefly three in number—sensitization, infection, and disturbances in the autonomic nervous system. A clinical grouping of patients under these three headings has been found helpful in diagnosis and treatment. For purposes of clearness brief mention will be made of the distinguishing features of the main groups and subgroups.

I. SENSITIZATION

1. *Pollen.*—Perennial symptoms may result from sensitization to a single pollen present in the air most of the year. For instance, in southern California, Bermuda grass has practically a perennial pollinating season. Or sensitivity may exist to a number of pollens, some of which may be present in the air at different seasons of the year. This is more likely to occur, however, in tropical or subtropical climates.

2. *Animal Epidermal Substances.*—The perennial type of hay fever caused by the dandruff and hair of horses, dogs, cats, rabbits, etc.,[1] and by various feathers[2] is not uncommon. The symptoms in these patients may not be marked and are frequently mistaken for colds.

3. *Pollen and Animal Epidermal Substances.*—Multiple sensitization to the allergenic substances present in pollen and animal hairs is not uncommon. The development of symptoms throughout the year in a patient with seasonal hay fever is usually due either to multiple sensitization of this kind or to a secondary infection of the paranasal sinuses.

4. *Orris Root*[3].—Sensitization to orris root is now recognized as a frequent cause of perennial hay fever. This sensitizing substance is contained in many face powders, tooth and bath powders, scented talcs, and sachets. Elimination therapy alone is often unsuccessful because of the widespread occurrence of orris root in house and street dust. The allergic factor in orris-sensitive patients is frequently overlooked. It is particularly important that every patient who suffers from an obstinate and obscure rhinitis be tested with an active extract of orris root before any rhinological surgery is undertaken.

5. *Foods.*[4]—That the inhalation of flour may give rise to nasal symptoms simulating hay fever has long been known; but that similar symptoms occurring throughout the year may be caused by the ingestion of certain foods is becoming better known. This type of perennial hay fever has been more often observed in children sensitive to such common foods as milk, eggs, and wheat. In them the nasal symptoms are frequently accompanied by cutaneous lesions such as urticaria and eczema.

II. INFECTION

That infection of the upper respiratory tract ranks as the second great factor in the development of perennial hay fever is gaining wide recognition. Infection may be primary or secondary to sensitization. It is now well realized by rhinologists that infection of the maxillary or more particularly of the ethmosphenoid group of sinuses may give rise to a train of symptoms resembling hay fever.[5] The discharge may be watery at first, but sooner or later becomes mucopurulent or purulent. This change in the nature of the nasal discharge may be the first indication that the infection is primary and not grafted on an allergic condition. Secondary infection of the paranasal sinuses is, however, a very frequent complication of seasonal hay fever and usually explains the development of symptoms throughout the year in a patient who, prior to this complication, had only seasonal symptoms. A careful history and rhinological examination will aid in the differentiation between perennial symptoms due to a primary infection or to an infection secondary to sensitization.

III. VASOMOTOR RHINITIS

The term "vasomotor rhinitis" or hyperesthetic rhinitis has been used loosely in the general and rhinological literature to include not only those patients having perennial symptoms, but also those suffering from attacks of seasonal hay fever. It would be more accurate, however, to reserve the name "vasomotor rhinitis" for that large group of perennial hay fever patients whose histories and cutaneous tests do not suggest any allergic background and in whom infection can be ruled out. The symptoms in this group are characterized by marked chronicity and severity. Many patients with vasomotor rhinitis continue for long periods with almost constant nasal obstruction and suffer from paroxysms of violent sneezing which is machine gun-like in character and accompanied by a profuse watery nasal discharge. Rhinological examination shows only a pale, shiny, and water-logged mucosa. Usually some intranasal pathological lesion is suspected and occasionally a deviated septum, a chronic infection in one or other sinus, or a focus in the

teeth may be found and treated with but little success. As the name implies, vasomotor rhinitis has been thought to be due to a disturbance in the functions of the autonomic nervous system. There is also evidence that deficiencies in the endocrine glands, particularly the pituitary and thyroid, may play a part in the etiology of vasomotor rhinitis.[6] [7]

Even though an exhaustive history and painstaking examination lead to a correct diagnosis, the treatment of this group of patients is so beset with stumbling blocks that the results obtained are often disappointing. Paranasal sinus infection and the presence of a highly sensitive nervous system greatly affect the prognosis. Successful treatment is in a measure determined by our ability to cope with these factors.

Samuel H. Hurwitz, San Francisco.

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Medicine

Cross-sensitization with Denatured Proteins. In seeking the probable cause of allergy, clinicians have directed their main attention to previous gastro-intestinal or parenteral absorption or injection of the specific protein to which the patient reacts, or to collateral proteins of the same sensitization group. That protein specificity can be altered by such factors as cooking, drying, decomposition or mixture with antiseptics or food preservatives has been largely overlooked. A very suggestive example of such alteration has been recently reported by W. A. Collier of the Bacteriological Institute, Department of Agriculture, Buenos Aires.[1]

Collier denatured horse serum by the addition of Bayer 205, and reports that the horse proteins thus "heterogenized" have acquired the power of collateral anaphylactic sensitization to cow serum. Collier, of course, warns against too hasty conclusion from this observation; but it is evident that he has opened up a very fertile field of speculation in hygiene.

W. H. Manwaring, Stanford University.

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1. Collier, W. A.: Die Beeinflussung des Anaphylaktischen Schuckes durch Bayerkörper. Zeitschr. f. Immunitätsf., 1927, Vol. 52, pp. 191-201.

Pediatrics

Intestinal Protozoa in Children.—In a recent article in this journal on intestinal protozoa,[1] Doctor Barrow called attention to certain symptomatology and therapy as they applied to adults. Very little mention has been made in the literature or in our standard textbooks about parasitic infection in children. With the present more intensive study of pediatrics it seems timely to call attention to the possibility of children being infected with the same parasitic protozoa as adults.

Many vague symptoms, such as failure to gain in weight, poor appetite, listlessness, nocturnal restlessness, and sometimes a little looseness of the bowels, possibly only one or two loose stools a day, on careful microscopic examination of the stool by a competent laboratory will be found to be referable to infestation of the intestinal tract by protozoa. As a rule the flagellates do not cause the above mentioned symptoms as often as do the *Entameba histolytica*.

In children having a history of frequent attacks of diarrhea, with mucus and blood, careful stool analysis should be made, not of a single specimen, but of repeated specimens to rule out positively any protozoa.

The medicinal treatment is essentially the same as that of adults, only in smaller dosage. As a rule treatment is effectual.

The last word in intestinal protozoa infections has not been written, and the more the excretions of children are studied the more frequently will answers be found to questions that are now puzzling.

A. J. Scott, Los Angeles.

REFERENCE

1. California and West. Med., Vol. xxix, No. 5, p. 303 et seq.

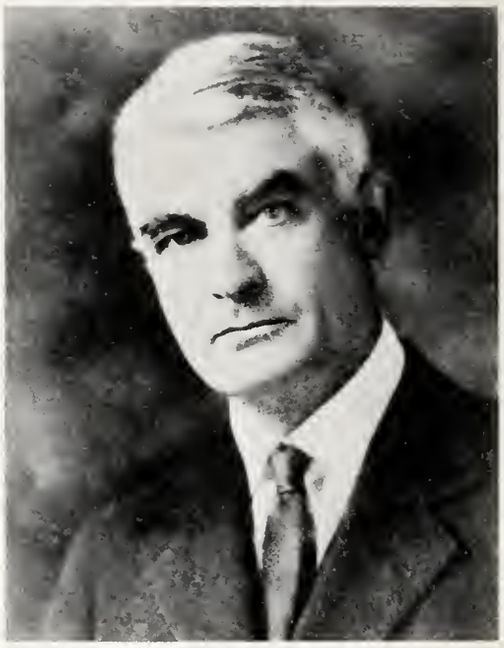
Tularemia in Sheep in Nature.—A report recently made public by the United States Public Health Service points out the proved occurrence of tularemia in sheep in nature. This opens the question of the possibility of human infection from the handling of infected carcasses. Infection is known to be definitely possible through the primary contamination of the hands with the tissue of crushed infected ticks held in the wool or with tick excrement which is commonly present in large masses. The fingers might also become contaminated by contact with the decayed tissue which sometimes develops at the points where infected ticks have been attached. The chance that infected meat might reach the market and be a source of danger to persons in slaughterhouses and packing houses and to the consuming public seems less likely, but cannot be altogether dismissed, especially if animals are slaughtered for immediate local consumption.

Further studies with reference to tularemia in sheep caused by the wood tick are being considered. These studies will endeavor to determine (1) the extent to which it is concerned in wood-tick caused conditions; (2) to determine the geographical limits of the occurrence, which are wider than indicated by present data; (3) to secure more detailed epidemiological, symptomatological, and pathological data; and (4) to determine whether the meat of infected slaughtered sheep is a possible source of human infection.—*United States Health News.*

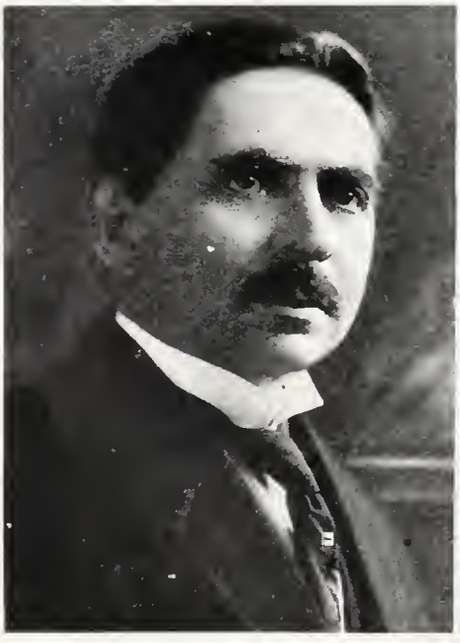
WILLIAM S. THAYER
President American Medical Association

ADMIRAL E. R. STITT
Medical Corps, United States Navy

FREDERICK H. FALLS
University of Illinois, College of Medicine



WILLIAM J. MAYO
Chief of Staff, Mayo Clinic



ROBERT C. COFFEY
Portland, Oregon

JOHN H. MUSSER
President American College of Physicians

BYRL R. KIRKLIN
Chief of Staff, Mayo Clinic

Speaker Guests at the 58th Annual Session, California Medical Association

Program

THE FIFTY-EIGHTH ANNUAL SESSION
of the
CALIFORNIA MEDICAL ASSOCIATION

To be held at
SAN DIEGO, CALIFORNIA, MAY 6-9, 1929

HOTEL DEL CORONADO—HEADQUARTERS

OFFICERS AND COMMITTEES, 1929

GENERAL OFFICERS

WILLIAM H. KIGER, Los Angeles, President
MORTON R. GIBBONS, San Francisco, President-Elect
EDWARD M. PALLETTE, Los Angeles, Vice-President
EMMA W. POPE, San Francisco, Secretary and Editor
GEORGE H. KRESS, Los Angeles, Editor
HARTLEY F. PEART, San Francisco, General Counsel
HUBERT T. MORROW, Los Angeles, Assistant General Counsel

COUNCILORS

First District
Lyell C. Kinney, San Diego (1930)
San Diego, Riverside, San Bernardino, and Imperial Counties

Second District
William Duffield, Los Angeles (1931)
Los Angeles, Santa Barbara, Ventura, and Orange Counties

Third District
William H. Bingaman, Salinas (1929)
San Luis Obispo and Monterey Counties

Fourth District
Fred R. DeLappe, Modesto (1931)
Fresno, Kern, Kings, Tuolumne, Merced, Mariposa Madera, Tulare, and Stanislaus Counties

Fifth District
John Hunt Shephard, San Jose (1929)
Santa Clara, San Mateo, San Benito, and Santa Cruz Counties

Sixth District
Walter B. Coffey, San Francisco (1929)
San Francisco County

Seventh District
Oliver D. Hamlin, Oakland (1929), Chairman
Alameda, Contra Costa, San Joaquin, and Calaveras Counties

Eighth District
Junius B. Harris, Sacramento (1931)
Sacramento, Amador, El Dorado, Alpine, Placer, Nevada Yuba, Sutter, Sierra, Yolo, Butte, Plumas, Lassen Mono, Inyo, Glenn, Colusa, Tehama, Shasta Modoc, and Siskiyou Counties

Ninth District
Henry S. Rogers, Petaluma (1929)
Marin, Sonoma, Lake, Mendocino, Solano, Napa, Del Norte, Humboldt, and Trinity Counties

Councilors-at-Large
Robert A. Peers, Colfax (1931)
Joseph Catton, San Francisco (1929)
George H. Kress, Los Angeles (1929)
Harlan Shoemaker, Los Angeles (1929)
T. Henshaw Kelly, San Francisco (1931)
Charles L. Curtiss, Redlands (1929)

EXECUTIVE COMMITTEE OF THE COUNCIL

T. Henshaw Kelly, Chairman
William H. Kiger
O. D. Hamlin
Morton R. Gibbons
Edward M. Pallette
George H. Kress
Emma W. Pope

AUDITING COMMITTEE OF THE COUNCIL

T. Henshaw Kelly, Chairman
Walter B. Coffey

DELEGATES AND ALTERNATES TO A. M. A.

Delegates		Alternates
Dudley Smith Oakland	(1929)	Walter B. Coffey San Francisco
Albert Soiland Los Angeles	(1929)	William H. Gilbert Los Angeles
Martha Welpton San Diego	(1929)	Eleanor Seymour Los Angeles
Victor Vecki San Francisco	(1929-1930)	William E. Stevens San Francisco
Percy T. Magan Los Angeles	(1929-1930)	Chas. D. Lockwood Pasadena

COMMITTEE ON SCIENTIFIC PROGRAM

Emma W. Pope, Chairman

Robert V. Day, (1929) Los Angeles	J. Marion Read (1931) San Francisco
Lemuel P. Adams (1930) Oakland	Karl L. Schaupp (1932) San Francisco

SAN DIEGO COMMITTEE ON ARRANGEMENTS

Mott H. Arnold, Chairman
C. E. Rees
James F. Churchill

1929 HOUSE OF DELEGATES

Membership

OFFICERS (Ex-officio Members)

William H. Kiger, Los Angeles.....President
Morton R. Gibbons, San Francisco.....President-Elect
Edward M. Pallette, Los Angeles.....Vice-President

Councilors

Lyell C. Kinney, San Diego (1930).....First District
William Duffield, Los Angeles (1931).....Second District
William H. Bingaman, Salinas (1929).....Third District
Fred R. DeLappe, Modesto (1931).....Fourth District
John Hunt Shephard, San Jose (1929).....Fifth District
Walter B. Coffey, San Francisco (1929).....Sixth District
Oliver D. Hamlin, Oakland (1929).....Seventh District
Junius B. Harris, Sacramento (1931).....Eighth District
Henry S. Rogers, Petaluma (1929).....Ninth District
Robert A. Peers, Colfax (1931).....At Large
Joseph Catton, San Francisco (1929).....At Large
George H. Kress, Los Angeles (1929).....At Large
Harlan Shoemaker, Los Angeles (1929).....At Large
T. Henshaw Kelly, San Francisco (1931).....At Large
Charles L. Curtiss, Redlands (1929).....At Large

DELEGATES	ALTERNATES
Alameda County (8)	
F. H. Bowles	W. B. Allen
Chesley Bush	F. S. Baxter
W. L. Channell	W. A. Clark
C. A. DePuy	Daniel Crosby
E. N. Ewer	H. H. Hitchcock
Gertrude Moore	F. B. Taylor
G. G. Reinle	H. J. Templeton
D. N. Richards	George McClure
Butte County (1)	
N. T. Enloe	D. H. Moulton
Contra Costa County (1)	
J. M. McCullough	L. St. John Hely
Fresno County (2)	
T. F. Madden	A. E. Anderson
C. O. Mitchell	W. G. Milholland
Glenn County (1)	
Etta S. Lund	S. Iglick
Humboldt County (1)	
Charles C. Falk	Charles C. Cottrell
Imperial County (1)	
Eugene Le Baron	B. R. Davidson
Kern County (1)	
R. M. Jones	George C. Sabichi
Lassen-Plumas County (1)	
Fred J. Davis	B. J. Lasswell
Los Angeles County (32)	
Irving R. Bancroft	H. B. Tebbetts
John V. Barrow	George Thomason
Fred B. Clarke	M. H. Ross
W. W. Hutchinson	H. Wilson Levengood
George Hunter	Rolla G. Karshner
Joseph M. King	Carl R. Howson
E. Earl Moody	H. P. Wilson
W. S. Mortensen	W. L. Huggins
Lewis D. Remington	Percy T. Magan
Wilbur Parker	R. Manning Clarke
Lyle G. McNeile	R. R. Montgomery
C. G. Toland	Thomas Chalmers Myers
C. N. Suttner	Roy W. Hainmack
Robert V. Day	Walter P. Bliss
George D. Stilson	H. A. Rosenkranz
Joseph K. Swindt	R. M. Dodsworth
William T. McArthur	Harold Witherbee
F. M. Pottenger	Wallace J. Miller
F. C. E. Mattison	R. W. Wilcox
James F. Percy	William J. Norris
B. O. Raulston	W. B. Thompson
Harry V. Brown	R. E. Ramsay
F. B. Settle	Scott D. Gleeten
Eleanor Seymour	C. G. Stadfield
Katherine Close	H. G. Westphal
Walter Bayley	A. J. Scott
Foster K. Collins	Ralph Byrnes
W. B. Bowman	T. W. Moffitt
Packard Thurber	G. D. Maner
R. G. Taylor	A. M. Rogers
Leroy Sherry	Joseph Goldstein
John C. Ruddock	W. T. Rothwell
Marin County (1)	
Carl W. Clark	L. L. Stanley
Mendocino County (1)	
Donald R. Smith	Raymond Babcock
Merced County (1)	
C. C. Fitzgibbon	A. S. Parker
Monterey County (1)	
William M. Gratiot	H. M. Hoyt
Napa County (1)	
M. M. Booth	Walter Blodgett
Orange County (2)	
R. A. Cushman	D. C. Cowles
H. E. Zaiser	W. S. Wallace
Placer County (1)	
C. E. Lewis	J. A. Russell
Riverside County (1)	
A. L. Bramkamp	Thomas A. Card
Sacramento County (2)	
W. K. Lindsay	C. B. Jones
George Foster	C. H. McDonnell
San Benito County (1)	
E. W. Hill	E. E. McKay
San Bernardino County (2)	
Gayle G. Moseley	E. L. Tisinger
F. F. Abbott	S. B. Richards
San Diego County (4)	
Martha Welpton	Lillian B. Mahan
Mott H. Arnold	C. E. Howard
Thomas O. Burger	F. L. Macpherson
Will Potter	C. E. Rees
San Francisco County (18)	
Elbridge J. Best	William R. P. Clark
Walter W. Boardman	Louise B. Deal
LeRoy Brooks	G. Dan Delprat
Harold Brunn	William Dock
Lloyd Bryan	Philip K. Gilman
Edmund Butler	Irving S. Ingber
William E. Chamberlain	Hans Lisser
Henry W. Gibbons	Robert C. Martin
John H. Graves	Harry R. Oliver
Sol Hyman	Karl L. Schaupp
Alexander S. Keenan	Daniel W. Sooy
Eugene S. Kilgore	Harry Spiro
William Palmer Lucas	I. Walton Thorne
Howard C. Naffziger	Joseph M. Toner
Langley Porter	Edward Topham
Henry A. L. Ryfkogel	Victor G. Vecki
William E. Stevens	Emma K. Willits
Alfred J. Zobel	J. Homer Woolsey
San Joaquin County (2)	
J. W. Barnes	G. H. Rohrbacher
B. J. Powell	Margaret H. Smyth
San Luis Obispo County (1)	
Gifford L. Sobey	Howard Gallup
San Mateo County (1)	
O. M. Holmes	E. F. Ziegelman
Santa Barbara County (1)	
Henry Ullmann	Franklin Nuzum
Santa Clara County (3)	
Fred S. Ryan	C. M. Burchfiel
Louis Boonshaft	Edwin M. Miller
D. P. Fagerstrom	James Bullitt
Santa Cruz County (1)	
P. T. Phillips	S. W. Dowling
Shasta County (1)	
Ferdinand Stabel	J. E. Taylor
Siskiyou County (1)	
C. G. Reynolds	Robert Heaney
Solano County (1)	
Ream S. Leachman	Robert B. Dempsey
Sonoma County (1)	
J. Walter Seawell	S. Z. Peoples
Stanislaus County (1)	
J. W. Morgan	R. E. Maxwell
Tehama County (1)	
R. G. Frey	F. H. Bly
Tulare County (1)	
W. W. Tourtillott	Gilbert B. Furness
Tuolumne County (1)	
Homer D. Rose	William L. Hood
Ventura County (1)	
L. W. Achenbach	W. J. Lewis
Yolo-Colusa County (1)	
Fred R. Fairchild	James E. Harbinson
Yuba-Sutter County (1)	
Smith McMullin	George W. Stratton

HOUSE OF DELEGATES MEETINGS

FIRST MEETING PROGRAM

Ballroom, Hotel del Coronado, Monday, May 6, 8 p. m.

Open to Members of the California Medical Association

ORDER OF BUSINESS

1. Call to order.
2. Roll call.
3. Report of President, William H. Kiger.
4. Appointment of the Reference Committee by the President.
5. Report of the Council, Oliver D. Hamlin, Chairman.
6. Report of the Committee on Scientific Program, Emma W. Pope, Chairman.
7. Report of the Auditing Committee, T. Henshaw Kelly, Chairman.
8. Report of the Secretary, Emma W. Pope.
9. Report of the Editors, George H. Kress, Emma W. Pope.
10. Report of the General Counsel, Hartley F. Peart.
11. Unfinished business.
12. New business. (Introduction of resolutions.)
13. Reading and adoption of minutes.
    Adjournment.

SECOND MEETING PROGRAM

Ballroom, Hotel del Coronado, Wednesday, May 8, 8 p. m.

Open to Members of the California Medical Association

ORDER OF BUSINESS

1. Call to order.
2. Roll call.
3. Announcement of the place of session, 1930.
4. Election of
   (a) President-elect
   (b) Vice-President
   (c) Councilors

   Third District—Incumbent, William H. Bingaman, Salinas (1929).

   Fifth District—Incumbent, John Hunt Shephard, San Jose (1929).

   Sixth District—Incumbent, Walter B. Coffey, San Francisco (1929).

   Seventh District—Incumbent, Oliver D. Hamlin, Oakland (1929).

   Ninth District—Incumbent, Henry S. Rogers, Petaluma (1929).

   Councilors at Large—Incumbent:
   Joseph Catton, San Francisco (1929).
   George H. Kress, Los Angeles (1929).
   Harlan Shoemaker, Los Angeles (1929).
   Charles L. Curtiss, Redlands (1929).

   (d) Member on Program Committee:
   Incumbent—Robert V. Day, Los Angeles (1929).

   (e) Delegates and Alternates to A. M. A.
   Incumbents:

Delegates		Alternates
Dudley Smith Oakland	(1929)	Walter B. Coffey San Francisco
Albert Soiland Los Angeles	(1929)	William H. Gilbert Los Angeles
Martha Welpton San Diego	(1929)	Eleanor Seymour Los Angeles

   One additional delegate and alternate from the North under last apportionment of the A. M. A.
5. Report of Reference Committee.
6. Presentation of President.
7. Presentation of President-elect.
8. Reading and adoption of minutes.
   Adjournment.

GENERAL INFORMATION*

Registration and Information.—The registration and information desk is located in the lobby, Hotel del Coronado. All persons attending the convention, whether members or not, are requested to register immediately on arrival. Beginning Monday, May 6, registration secretaries will be on duty daily from 9 a. m. until 5 p. m.

Guests and Visitors.—All guests and visitors are requested to register. All general meetings and scientific meetings are open to visitors and guests.

Badges.—Four kinds of badges will be issued by the registration bureau:

1. Members.—Only active, associate, affiliate or honorary members of the California Medical Association will be issued the usual membership badge. Members must show membership cards when they register.
2. Guest.—A special badge will be issued to all fraternal delegates, visiting physicians, physiotherapists, medical social workers, nurses, and other technical specialists who are attending the 1929 session.
3. Delegates and Alternates.—The usual official badge is provided for this purpose, and will be issued only to persons authorized to wear it.
4. Councilors.—An official badge is provided for all officers and members of the Council.

Membership Cards.—Every member in good standing in the California Medical Association has been issued an official membership card for 1929. Present membership card at registration desk.

Suggestions and Constructive Criticism.—The officers and committees have tried to do everything possible to make the session a success. Suggestions and constructive criticism calculated to make future sessions more useful will be welcomed by any of the officers. Complaints of whatever character should be made to the registration desk, where they will receive attention.

Social Program.—The social program is in the hands of the Entertainment Committee, and is published at the end of this program.

Press Representatives.—Accredited press representatives are welcome, and they will be accorded every possible courtesy.

Publicity.—All publicity is in the hands of the Publicity Committee. It is requested that all persons having matter of "news" value report it to this committee. It is particularly requested that all "news" about any phase of the convention be given out through the official committee, and in no other way.

Exhibits.—Only advertisers in California and Western Medicine are permitted to exhibit at the annual meeting.

Rules Regarding Papers and Discussions at the State Meeting.—Upon recommendation of the Executive Committee, the following rules regarding papers have been adopted by the Council:

1. The maximum time that may be consumed by any paper is fifteen minutes, provided that not to exceed ten minutes' latitude may be allowed invited guests at the discretion of the presiding chairman.
2. Motions from the floor to extend the time of an author may not be entertained by the presiding officer.
3. The maximum time permitted any individual to discuss a paper is four minutes. This also applies to the author in closing his discussion. No speaker may discuss more than once any one subject.
4. A copy of each and every paper presented at the state meeting must be in the hands of the chairman or secretary of the section or in the hands of the general secretary before the paper is presented.
5. All papers read at the annual meeting shall be published in full in California and Western Medicine as soon after the meeting as space will permit, or at the option of the author. An abstract of the paper of about one column in length shall be published as soon as possible after the meeting with reprints in full of the entire paper (the cost of setting up type for the reprint to be borne by the Association, and all other costs to be borne by the author).
6. Articles are accepted for publication on condition that they are contributed **solely** to California and Western Medicine. Authors desiring to publish their papers elsewhere than in the journal may have their manuscripts returned to them upon written request to the state secretary.
7. No paper will be accepted by the General Program Committee nor by Section Program Committees unless accompanied by a synopsis of not to exceed fifty words.
8. Papers shall not be "read by title."
9. No member may present more than one paper at any state meeting, provided that a member may be a collaborator on more than one paper, if these papers are presented by different authors.
10. Failure on the part of an author to present a paper precludes acceptance of future papers from such author for a period of two years, unless the author explains to the satisfaction of the Executive Committee his inability to fulfill his obligation.

SAN DIEGO SUBCOMMITTEES ON ARRANGEMENTS

Finance.—William H. Geistweit, Jr., chairman, Edwin H. Crabtree, Chester O. Tanner.

Publicity.—Clarence Rees, Chairman, Rawson J. Pickard, George B. Worthington.

Invited Guests.—Lyell C. Kinney, Chairman, James F. Churchill, Clarence Rees, Mott H. Arnold, James Sherill.

Commercial Exhibit.—Mott H. Arnold.

Scientific Exhibit.—Harold A. Thompson, Chairman, Harvey K. Graham, Willard Newman.

Entertainment.—Andrew B. Wessels, Chairman, E. P. Chartres-Martin, Thomas O. Burger.

Hotel Reservations.—Frank Carter, Chairman, Charles W. Lane, Edward Blondin.

Meeting Places.—William Potter, Chairman, Andrew J. Thornton, Louis J. Strahlmann.

Entertainment of Visiting Ladies.—Mrs. James F. Churchill, Chairman.

Information and Registration.—David C. Higbee, Chairman, James D. Bobbitt, Donald K. Woods.

Women Physicians.—Marjorie Potter, Chairman, Olive Cordua, Martha Welpton.

Golf.—Edgar Lee, Chairman, Samuel Durr, Ray Lounsberry.

Medical Reserve.—John C. Dement, Chairman, Alfred E. Banks.

Naval Activities.—Captain Spear, Chairman, Fraser Macpherson, Charles W. Brown.

Transportation.—James W. McColl, Chairman, C. Pennell Baxter, S. J. McClendon.

* See page 290 for entertainment program, golf tournament, etc.; page 291 for transportation and hotel information.

ROBERT G. HENDERSON
Chairman Anesthesiology Section

ERNEST D. CHIPMAN
Chairman Dermatology and Syphilology Section

RODERIC P. O'CONNOR
Chairman Eye, Ear, Nose, and Throat Section

Q. O. GILBERT
Chairman General Medicine Section

JOHN HOMER WOOLSEY
Chairman General Surgery Section

D. PACKARD THURBER
Chairman Industrial Medicine and Surgery Section

SCIENTIFIC EXHIBIT

Thyroid Pathology. Dr. Henry Hunt Searls and Dr. Raymond J. Millzner, University of California Hospital, San Francisco.

Lesions of the Gastro-Intestinal Tract—Pathological Specimens. Dr. William Taylor Cummins, Southern Pacific Hospital, San Francisco.

The Paranasal Sinuses—A Roentgen-Ray Study. Dr. Edward W. Chamberlain, Stanford University Hospital.

Nontuberculous Lesions of the Chest. Dr. Lloyd Bryan, San Francisco.

Bone Tumors, with Microscopic Sections. Dr. Leonard W. Ely, Stanford University Hospital, San Francisco.

Hay Fever Producing Shrubs and Grasses. Dr. Albert H. Rowe, Oakland.

Bone Tumors—The Sarcoma Registry of the American College of Surgeons. Dr. Edwin I. Bartlett, San Francisco, and Dr. Bowman Crowell, Chicago.

DR. H. A. THOMPSON,
Chairman Committee on Scientific Exhibit.

General Outline of Various Meetings and Entertainment

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
Mornings			9-11:30 Section Meetings Council	9-11:30 Section Meetings Council	8:30-11:00 Section Meetings Council
		10-12:30 General Meeting	11:30-1:00 General Meeting	11:30-1 General Meeting	11:00-12:30 General Meeting
1-2 P. M.		Reserve Officers Luncheon	Ladies' Luncheon Agua Caliente	County Secretaries Luncheon	
2-5:00		Section Meetings Ladies Reception Mmes. Kiger and Gibbons Council	Golf Tournament Boat Trips Motion Pictures Ballroom	Rockwell Field 2-3:00 Sightseeing Busses Medical Women's Trip Motion Pictures Ballroom Fraternity Dinner Agua Caliente 3:30	Golf
8:00	Council	House of Delegates Ballroom Informal Dance Casino	President's Dinner Dance	House of Delegates Ballroom Bridge and Informal Dance	

SAMUEL D. INGHAM
Chairman Neuropsychiatry Section

HENRY N. SHAW
Chairman Obstetrics and Gynecology Section

WILFRED H. KELLOGG
Chairman Pathology and Bacteriology Section

EDWARD S. BABCOCK
Chairman Pediatrics Section

LYELL C. KINNEY
Chairman Radiology Section

WILBUR B. PARKER
Chairman Urology Section

MEETINGS, DINNERS AND LUNCHEONS

Meetings of the House of Delegates.—Monday and Wednesday evenings, May 6 and May 8, at 8 p. m. in ballroom, Hotel del Coronado.

Council Meetings.—Dr. Porter's Office:

First meeting—Sunday, May 5, at 8 p. m.

Second meeting—Monday, May 6, at 2 p. m.
Third meeting—Tuesday, May 7, at 9 a. m.

Fourth meeting—Wednesday, May 8, at 9 a. m.

Fifth meeting—Thursday, May 9, at 9 a. m.

General Meetings.—The public is invited to attend all general meetings:

Monday, 10 a. m. to 12:30 p. m.—Presidential Addresses, ballroom.

Tuesday, 11:30 a. m. to 1 p. m.—Addresses, invited guests, ballroom.

Wednesday, 11:30 a. m. to 1 p. m.—Addresses, invited guests, ballroom.

Thursday, 11 a. m. to 12:30 p. m.—Addresses, invited guests, ballroom.

President's Dinner and Dance.—Tuesday evening, ballroom, Hotel del Coronado. See Page 290.

Secretaries' Luncheon.—Wednesday, 1 to 2 p. m., Hotel del Coronado.

Presidents and secretaries of constituent societies are requested to be present at a luncheon to be held at Hotel del Coronado on Wednesday at 1. p. m. Please make your reservations for this luncheon at the registration desk as early as possible.

DIAGRAM OF SECTION MEETINGS

	Ballroom	Casino	Silver Grill	Breakfast Room	Room A	Room B	Room C	Room D
May 6 2-5 p.m.	Union Meeting Medical Sections (See Gen'l Medicine Program)	Surgery	Obstetrics	Urology	Dermatology	Industrial Medicine		Neuropsychiatry
May 7 9-11:30 a.m.	Medicine	Union Meeting Surgical Sections (See Gynecology Program)	Urology	Pediatrics	Dermatology	Anesthesiology	Pathology	Neuropsychiatry
May 8 9-11:30 a.m.	Medicine	Surgery J. F. Binnie Meeting	Eye, Ear Nose and Throat	Urology	Anesthesiology	Industrial Medicine	Pathology	Radiology
May 9 8:30-11 a.m.	Medicine	Surgery	Eye, Ear, Nose and Throat	Pediatrics				Radiology

GENERAL MEETINGS

All General Meetings will be held in the Ballroom

FIRST GENERAL MEETING

Monday, May 6, 10 a. m.

Address of Welcome—James F. Churchill, M. D.
President's Annual Address—William H. Kiger, M. D.
Address of President-elect—Morton R. Gibbons, M. D.
Sir William Osler—William S. Thayer, M. D., President American Medical Association.
Report of Arrangements Committee—Mott H. Arnold, M. D.

SECOND GENERAL MEETING

Tuesday, May 7, 11:30 a. m.

Functional Disorders—John H. Musser, M. D., President American College of Physicians.
Address—Colonel E. L. Munson, Medical Corps.
Trends in Medical Aviation—Admiral Edward R. Stitt, Surgeon-General, U. S. N.

THIRD GENERAL MEETING

Wednesday, May 8, 11:30 a. m.

The Enlarged Spleen—William J. Mayo, M. D., Chief of Staff, Mayo Clinic.
Report on Maternal Mortality—Ellen Stadtmuller, M. D.

FOURTH GENERAL MEETING

Thursday, May 9, 11 a. m.

Eclamptogenic Toxemia and Its Management—Frederick H. Falls, M. D., Professor of Obstetrics and Gynecology, University of Illinois.
Rationale of the Present-Day Treatment of Cancer—Robert C. Coffey, M. D., Portland.

SECTION MEETINGS*

ANESTHESIOLOGY SECTION

R. G. Henderson, M. D., Chairman
502 Marine Bank Building, Long Beach
L. A. Rethwilm, M. D., Secretary
2217 Webster Street, San Francisco

First Meeting—Room B

Tuesday, May 7, 9 to 11:30 a. m.

1. Chairman's Address—*Discussion of Anesthesia Service, Especially as Related to the Smaller Community*—Robert G. Henderson, M. D., Long Beach.

   New interest has been taken in anesthesia with the perfection of apparatus and new anesthetics. Service in large clinics satisfactory. What can be done to improve the service in the smaller communities?
2. *Water's CO_2 Absorption Anesthesia (By Analysis)*—Arthur E. Guedel, M. D., 506 North Linden Strect, Beverly Hills.

   Discussion opened by Mary E. Botsford, M. D., San Francisco.

   Anesthetic agents are not destroyed in the body as we formerly supposed. The necessary tension of the agent is established in the tissues, and held there by preventing escape through the lungs. Expired CO_2 is taken up by soda-lime and oxygen administered in accordance with metabolic requirements.
3. *Carbon Dioxid as a Respiratory Stimulant in Ethylene Anesthesia*—Mary E. Botsford, M. D., 807 Francisco Street, San Francisco.

   Discussion opened by C. D. Leake, M. D., San Francisco.

   Necessity for respiratory stimulant in ethylene anesthesia. Carbon dioxid is the most potent. Dangers of carbon dioxid when proper percentages are not available.
4. *Ethylene—Its Advantages and Indications*—L. W. Harding, M. D., St. Regis Hotel, Los Angeles.

   Discussion opened by Wayland A. Morrison, M. D., Los Angeles.

   Ethylene, the most important anesthetic since the discovery of the anesthetic properties of ether. The technique of administration and the importance of special training. Advantages: its safety, short agreeable induction stage, early recovery period, and lack of injurious after-effects. Indications: in bad risk cases, old people and where ether is contraindicated.

Second Meeting—Room A

Wednesday, May 8, 9 to 11:30 a. m.

1. *The Anesthetizing of Children for Orthopedic Surgery*—James R. Martin, M. D., 901 Medico-Dental Building, 746 Francisco Street, Los Angeles.

   Discussion opened by R. F. Hastreiter, M. D., Los Angeles.

   A review of several hundred anesthetic records from the Orthopedic Hospital of Los Angeles. Special attention given to the selection of the anesthetizing agent, preoperative preparation and care, surgical shock, and postoperative effect.
2. *Gwathmey Analgesia—Observations on Its Use in Private and Clinical Practice*—Ludwig A. Emge, M. D., 2000 Van Ness Avenue, San Francisco, and Chester L. Cooley, M. D., Stanford Hospital, San Francisco.

   Discussion opened by John Vruwink, M. D., Los Angeles.

   Gwathmey analgesia has proved an excellent adjunct. Not applicable to all cases nor circumstances, but must be carefully selected. May shorten second stage and prolong third stage, leading to greater use of low forcep operations. Particular value in posterior presentations. Discussion of points of technique. Report of cases.
3. *Purification of Anesthetic Gases*—Donald E. Baxter, M. D., Glendale.

   Discussion opened by William W. Hutchinson, M. D., Los Angeles.

   Improved methods of testing nitrous oxid, oxygen, and ethylene, making possible the establishment of routine factory control on all anesthetic gases. Improved methods of gas purification and manufacture and their relation and importance to better anesthesia. (Lantern slides.)
4. *Postoperative Pulmonary Atelectasis—A Discussion of Its Etiology, Treatment and Prevention*—Emile Holman, M. D., and Mary E. Mathes, M. D., Stanford University Hospital, San Francisco.

   Discussion opened by F. L. Reichert, M. D., San Francisco.

   Theories to account for this puzzling pulmonary complication. Experimental production of massive collapse in dogs by introduction of bronchial plug and abolition of cough reflex. Review of clinical cases. Methods of prevention before, during and following operation by avoidance of heavy medication with atropin and morphin, complete expansion of lung by carbon dioxid and deep breathing, and by frequent change of position postoperatively. Treatment.
5. Business meeting.

* Hours of Sections Meetings.—This year a new system will be tried out. Its success will largely depend upon the extent to which section chairmen and secretaries coöperate. Section meetings should begin promptly. Especially should they close promptly at the hour designated in order that the General Meetings may convene on time in the Ballroom. Section chairmen should announce that the association rules regarding time limits on discussion will be enforced.

DERMATOLOGY AND SYPHILOLOGY SECTION

E. D. Chipman, M. D., Chairman
501 Union Square Building
350 Post Street, San Francisco

H. J. Templeton, M. D., Secretary
3115 Webster Street, Oakland

First Meeting—Room A

Monday, May 6, 2 to 5 p. m.

1. Chairman's Address—Ernest D. Chipman, M. D., San Francisco.
2. *Scabies and Its Complications*—Thomas J. Clark, M. D., 1800 Madison Avenue, Oakland, and Frank H. Stibbens, M. D., Madison-Lake Apartment, Madison and Lake Street, Oakland.

   Discussion opened by George Culver, M. D., San Francisco.

   Scabies: World-wide distribution. Types of parasite; infestation in homes, schools, camps, by venery, etc. Diagnosis confused by urticarial complications, and severe pyodermatitis, and by partial and inefficient treatments. Persistent nodular types. Treatment.
3. *The Use of Long Wave X-Rays in Dermatology*—Laurence Taussig, M. D., 803 Fitzhugh Building, 384 Post Street, San Francisco.

   Discussion opened by H. J. Templeton, M. D. Oakland.

   The development of apparatus for the production of the so-called "Grenz" rays. A discussion of the physical and biological factors involved. A review of the literature regarding the clinical applications of these rays. A brief report of personal experience during the past nine months.
4. *Painful Ear Nodule of Winkler and Foerster*—George Culver, M. D., 704 Elkan-Gunst Building, 323 Geary Street, San Francisco.

   Discussion opened by Hiram E. Miller, M. D., San Francisco.

   Origin of name. Description of lesion. Frequency of occurrence. Location. Relationship of cutaneous and cartilaginous changes. Case reports. Conclusions that may be drawn from results of treatment. Discussion of treatment.
5. *Lesions of the Tongue*—H. C. L. Lindsay, M. D., 104 North Madison Avenue, Pasadena.

   Discussion opened by Laurence Taussig, M. D., San Francisco.

   Books on dermatology neglect, somewhat, diseases of the tongue. Treatment and diagnostic details too brief. Prognosis unduly alarming, especially in those conditions which resemble leukoplakia and glossitis. Traumatic lesions, congenital lesions and drug rashes are barcly mentioned.

   Lantern slides of usual and some unusual diseases of the tongue will illustrate diagnosis and treatment.

Second Meeting—Room A

Tuesday, May 7, 9 to 11:30 a. m.

1. *The Syphilitic Kidney*—Irving Bancroft, M. D., 812 Detwiler Building, 412 West Sixth Street, Los Angeles.

   Discussion opened by Kendal P. Frost, M. D., Los Angeles.

   Discussion of pathology in syphilis of kidney and resultant action on secreting kidney cells. Distinctive action of antisyphilis treatment on secreting cells. Presence of albumin in urine before and after antisyphilitic treatment. Relation of jaundice to diminished kidney function. Report of fatal cases with autopsy findings.
2. *Indirect Treatment of a Syphilitic Child by Maternal Therapy During Lactation*—H. Sutherland Campbell, M. D., and Kendal P. Frost, M. D., 816 Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles.

   Discussion opened by Hiram E. Miller, M. D., San Francisco.

   Maternal syphilis of twenty years' standing. Inadequately treated. Two congenital syphilitic children, the second one eight years old. Treatment of mother instituted at beginning of ninth month of pregnancy of third child. Treated regularly during twelve months of lactation with neoarsphenamin. This child received no direct medication. Wassermann negative to twelve months. No physical signs of lues.
3. *Coccidioidal Granuloma*—Harry P. Jacobson, M. D., 1016 South Alvarado Street, Los Angeles.

   Discussion opened by Samuel Ayres, Jr., M. D., Los Angeles.

   Additional observations on the effect of colloidal copper in the treatment of this disease as based upon six cases under my treatment this past year. In addition to the colloidal copper treatment, immunotherapy in the form of injections of coccidioidal filtrate containing an endo- and exotoxin, has been used. It is my impression at this stage of the investigation that this immunotherapy enhances the action of the copper.
4. *Carbon Arc Light Versus Quartz Lamp in the Treatment of Skin Diseases*—Moses Scholtz, M. D., 907 Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles.

   Discussion opened by Harry P. Jacobson, M. D., Los Angeles.

   Carbon arc light treatment. Apparent indifference of dermatologists and scarcity of data. Finsen light; modern carbon arc light burners; modern multiple cored impregnated carbons. Relative therapeutic values. Technical and clinical advantages and disadvantages. Therapeutic value of fractional and massive doses and of erythema dose of ultra-violet rays. Clinical selection of cases.
5. *Recent Contributions to the Study of Eczema*—Samuel Ayres, Jr., M. D., 517 Westlake Professional Building, 2007 Wilshire Boulevard, Los Angeles.

   Discussion opened by Stanley O. Chamber, M. D., Los Angeles.

   Eczema not a disease, but a mode of reaction of the skin to a variety of causes. Experimental investigations on the relation of eczema to the involuntary nervous system and to the calcium-potassium ratio in the skin. Eczema due to arsenic. Eczema due to disturbances in the uric acid and carbohydrate metabolism. Parasitic types of eczema. Newer methods of treating eczema.

EYE, EAR, NOSE, AND THROAT SECTION

R. P. O'Connor, M. D., Chairman
910 Medical Building
1904 Franklin Street, Oakland

A. B. Wessels, M. D., Secretary
1305 Medico-Dental Building
233 A Street, San Diego

First Meeting—Silver Grill

Wednesday, May 8, 9 to 11:30 a. m.

1. Chairman's Address—*Who Should Make Eye Examinations?*—Roderic P. O'Connor, M. D., Oakland.
2. *Capsulotomy Methods of Lens Extraction*—D. F. Harbridge, M. D., Phoenix, Arizona. (By invitation.)
3. *Intracapsular Cataract Extraction*—Lloyd Mills, M. D., 609 South Grand Avenue, Los Angeles.

   The last word has by no means been said in the intracapsular extraction of cataract. The three methods in vogue among expert operators

are still under modification. The occasional operator performs the intracapsular extraction usually as an accident, and is far safer not to attempt this form of extraction as routine.

4. *Lens Absorption by Traumatism—Accidental and Intentional*—Raymond J. Nutting, M. D., 805 Medical Building, 1904 Franklin Street, Oakland.

5. *Surgical Consideration of Glaucoma*—May T. Riach, M. D., 1007 Medico-Dental Building, 233 A Street, San Diego.

   Comparing the end-results of three hundred cases of glaucoma operated on by three methods in equal numbers, the Reese iridectomy, the Elliott trephine, and the La Grange, I am of the opinion that the secret of success lies in the finesse of technique more than in the choice of operation.

6. Business meeting.

Second Meeting—Silver Grill

Thursday, May 9, 8:30 to 11 a. m.

1. *Toti-Mosher Operation in Obstruction of the Nasolacrimal Duct*—Frederick C. Cordes, M. D., and Robert C. Martin, M. D., Fitzhugh Building, 384 Post Street, San Francisco.

   Discussion opened by Morie F. Weymann, M. D., Los Angeles.

   The results are reported in a series of cases of obstruction of nasolacrimal duct in which the Toti-Mosher operation was performed. The operation is indicated in the majority of cases of obstruction of the nasolachrimal duct. The factors forming a contraindication are discussed. The importance of careful detail work is emphasized and the technique of the operation given.

2. *Anatomical Variations of Accessory Nasal Sinuses*—Edwin S. Budge, M. D., 1100 Roosevelt Building, 727 West Seventh Street, Los Angeles.

   Discussion opened by Lawrence K. Gundrum, M. D., Los Angeles. (Discussion with lantern slides.)

3. *Sphenoiditis — Diagnosis and Treatment* — Dean E. Godwin, M. D., 910 Security Building, Long Beach.

   Discussion opened by J. Frank Friesen, M. D., Los Angeles.

   The sphenoid often neglected because of its inaccessibility. Important structure in intimate relation and symptoms caused by their involvement. Types of sphenoiditis. Treatment, medical and surgical. Illustrative case reports.

4. *Infection of the Ethmoid Labyrinth*—Ferris L. Arnold, M. D., 609 Security Building, Long Beach.

   Discussion opened by Isaac H. Jones, M. D., Los Angeles.

   Anatomy, special pathology, etiology, diagnosis, discussion of types of infection, symptoms, and treatment, both medical and surgical.

5. *Maxillary Antrum Infection in Children*—Francis M. Shook, M. D., 604 Medical Building, 1904 Franklin Street, Oakland.

   An argument for early diagnosis, prompt and thorough treatment. Symptomatology, acute and general; etiology; surgical treatment; postoperative treatment; results and conclusions.

6. *Extensive Impairments from Minor Ear Lesions*—Eugene R. Lewis, M. D., 1154 Roosevelt Building, 727 West Seventh Street, Los Angeles.

   Discussion opened by David R. Higbee, M. D., San Diego.

   Marked improvement of major difficulties sometimes follows relatively minor therapeutic procedures. Three short case reports exemplify the importance of careful diagnosis and simple treatment.

GENERAL MEDICINE SECTION

Q. O. Gilbert, M. D., Chairman
301 Medical Building
1904 Franklin Street, Oakland

Walter P. Bliss, M. D., Secretary
407 Professional Building
65 North Madison Avenue, Pasadena

Union Meeting of Medical Sections
Ballroom

Monday, May 6, 2 to 5 p. m.

1. *A Practical Consideration of Cholecystography*—B. R. Kirklin, M. D., Rochester Minnesota. (By invitation.)

   A review of more than twenty-five thousand cholecystograms made at the Mayo Clinic during the last four years shows a progressive increase in accuracy of diagnosis. A positive report correct in 96 per cent of the cases, a negative report not quite so reliable. Oral method generally accepted as best. Is a test of gall-bladder function primarily.

2. *Indication for Surgery in Pulmonary Tuberculosis*—H. E. Schiffbauer, M. D., 1221 Brockman Building, 520 West Seventh Street, Los Angeles.

   Selection of cases is a matter of prime importance. Close collaboration with an expert in pulmonary tuberculosis is essential. The type of tuberculosis in the diseased lungs. Condition of contralateral lung. Age and existing other tuberculous lesions. Condition of circulatory and renal systems. Resistance of patient to surgery.

3. *The Diagnosis and Treatment of Lung Abscess*—Frank Stephen Dolley, M. D., 1247 Roosevelt Building, 727 West Seventh Street, Los Angeles.

   Mode of production of lung abscess. Symptoms and signs. Method of diagnosis; history, physical examination, fluoroscope and x-ray films. Complications with or without operation. Physiological and mechanical difficulties encountered in obliteration intrathoracic cavities. Treatment: medical, surgical. Lantern slides showing (1) x-ray methods in diagnosis and (2) various types of abscess with treatment and results.

4. *The Etiologic Identity of Human and Rat Leprosies*—E. L. Walker, Ph. D., Hooper Foundation, University of California, San Francisco. (By invitation.)

   This is a preliminary paper on the cultivation of an acid-fast organism from rat leprosy, its identity with the organism cultivable from human leprosy, and the probable common etiology and endemiology of both diseases as an infection with a pleomorphic and facultative acid-fast actinomyces from the soil.

First Meeting—Ballroom

Tuesday, May 7, 9 to 11:30 a. m.

1. Chairman's Address—Quinter Olen Gilbert, M. D., Oakland.

2. *Mouth Infections in Relation to Systemic Diseases*—John H. Musser, M. D., Tulane University, New Orleans. (By invitation.)

   Many lesions of the oral cavity are purely local. Others are local and systemic, with the systemic manifestations frequently very pronounced. Such conditions as scarlet fever, diphtheria, Vincent's angina, agranulocytic angina, and leukemia will be discussed, and more particularly their relationship to alternatives in the blood count.

3. *Pyocyanic Angina with Agranulocytic Leukopenia*—Madison J. Keeney, M. D., 834 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

Report of fatal case diagnosed as diphtheria. Differential diagnosis, clinical and laboratory. Review of reported cases of agranulocytic angina and stomatitis with and without the presence of the *Bacillus pyocyaneus*. Discussion of pathogenicity of *Bacillus pyocyaneus* and its possible importance in agranulocytic angina—probably a definite clinical entity.

4. *The Blood Picture in Hodgkin's Disease*—Ernest H. Falconer, M. D., University of California Hospital, Fourth and Parnassus Avenues, San Francisco.

Blood counts in a series of cases of Hodgkin's disease, studied at the University of California Hospital and the "blood" clinic of the medical out-patient department, are analyzed. The count is compared with statistics from other clinics, to see whether any features in the formed elements of the blood are diagnostic of Hodgkin's disease.

5. *Acute Arsenic Poisoning—A Report of Seven Cases and a Study of Arsenic Excretion, with Special Reference to the Hair*—T. L. Althausen, M. D., University of California Hospital, Fourth and Parnassus Avenues, San Francisco.

An outbreak of acute arsenical poisoning is reported. Studies on arsenic excretion in the urine, feces, and hair are given and the diagnostic importance of hair analysis in suspected cases is pointed out. The treatment of arsenic poisoning with sodium thiosulphate is discussed.

Second Meeting—Ballroom

Wednesday, May 8, 9 to 11:30 a. m.

1. *Diagnosis of Tuberculosis in Its Relationship to the Immunity Reaction*—F. M. Pottenger, M. D., Monrovia.

Early tuberculosis a curable disease if treated immediately. Activity makes itself known by the immunity reaction. Allergy due to tuberculoprotein sensitization causes three groups of symptoms: those due to toxins, those of reflex nature, and those due to the local action in the lung. Evaluation of groups and of individual symptoms. Clinical history, if carefully analyzed, alone will determine diagnosis in nearly all frank cases of early tuberculosis.

2. *Some Points Regarding Pulmonary Tuberculosis and Its Relation to the School Child*—E. W. Hayes, M. D., 129 North Canyon Drive, Monrovia.

This paper deals with pulmonary tuberculosis, particularly in its relation to children of school age. Primarily, it is a review of the work of Opie and McPhedran of the research department of the University of Pennsylvania, wherein they attempt to evaluate the history, physical examination and x-ray in the study of children.

3. *Importance of Dosage in the Specific Treatment of the Diseases of Hypersensitiveness*—Edward Matzger, M. D., 308 Medical Building, 909 Hyde Street, San Francisco.

Relationship between minute exposure to active substances and production of symptoms; trigger-action. Outline of a comparatively simple technique for determining the patient's individual degree of hypersensitiveness after a specific diagnosis is made. Importance of the evaluation of this factor before instituting treatment. The method of the determination of the optimum or maximum dose.

4. *Results of Vaccine Treatment in Infectious Bronchitis and Asthma*—William C. Voorsanger, M. D., and Fred Firestone, M. D., 1001 Medico-Dental Building, 490 Post Street, San Francisco.

Results of eight years' experience in the treatment of infectious bronchitis and asthma with autogenous vaccines. Method of obtaining and preparing the vaccine.

5. *Ammonium Orthoiodoxybenzoate in the Treatment of Arthritis*—J. Edward Harbinson, M. D., Woodland Clinic, Woodland.

Reports of the efficacy of this preparation in the treatment of arthritis have varied from no appreciable effect to very good results. Experience to date has been that no single therapeutic procedure is universally efficacious in the treatment of arthritis. The conclusions have been that ammonium orthoiodoxybenzoate is indicated in selected cases of arthritis as an adjunct to other established therapeutic procedures. The preparation, method of administration and results, with case reports, are given.

6. *The Influence of Various States of Hydremia on the Efficacy of Insulin*—A. H. Wightman, M. D., 604 Medical Building, 1136 West Sixth Street, Los Angeles; R. L. McCalla, M. D., Relief Home, San Francisco; and R. Emmet Allen, M. D., University of California Hospital, Fourth and Parnassus Avenues, San Francisco.

A discussion of the practical significance of forced fluids and limited fluid intake in the treatment of diabetes mellitus requiring insulin. (Lantern slides.)

Third Meeting—Ballroom

Thursday, May 9, 8:30 to 11 a. m.

1. *Physical and Clinical Signs in Relative Valvular Insufficiency Correlated with Roentgen Evidence*—Francis M. Smith, M. D., and A. B. Smith, M. D., 1228 Cave Street, La Jolla.

Relative mitral insufficiency ordinarily associated with hypertension or sclerotic changes. Insufficiency due to essential cardiac pathology always associated with stenosis. Roentgen examination shows characteristic differences in cardiac outlines, which assist differentiation of type and give permanent record of cardiac changes. Illustrative cases with correlation of clinical and roentgenological data.

2. *Some Toxic and Other Difficulties in Quinidin Therapy and Their Avoidance*—William W. Newman, M. D., Flood Building, 870 Market Street, San Francisco, and Harry Spiro, M. D., 501 Flood Building, 870 Market Street, San Francisco.

Quinidin, a valuable cardiac drug, is not sufficiently appreciated and used, largely because of the following difficulties: (1) The limits of its indications are not always appreciated. (2) Its application requires accurate diagnosis of the more common cardiac arrhythmias. (3) The dosage must be vigorously pushed. (4) In the treatment of auricular fibrillation there are some certain dangers in its use; for example, embolism and direct toxic action on the cardiac muscle. Three cases showing direct toxic effects on the heart muscle are presented briefly, with a series of electrocardiograms showing the progress of the poisoning.

3. *A Test for Bile Pigment in Blood Serum with Clinical Applications*—Frederick Eberson, M. D., University of California Hospital, Fourth and Parnassus Avenues, San Francisco.

Filtration test with trichloracetic acid. Color detected in thirty seconds to two or three minutes. Filtration requires ten minutes for maximum color. Pigment washed from filter paper and brought into clear solution with N/1 sodium hydroxid. Solution, color is approximately one hundred times, and on filter paper the test is

two hundred times more sensitive than the Van den Bergh. Test most sensitive in latent jaundice and does not give nonspecific results with serum showing hemolysis. Sensitive to 1/100th unit azobilirubin. Clinical evaluation.

4. *Management of Peptic Ulcer*—Grant H. Lanphere, M. D., 700 Professional Building, 1052 West Sixth Street, Los Angeles.

   A brief résumé of the etiology, symptomatology, diagnosis, and treatment of peptic ulcer. Slides to illustrate type and location of ulcer. Indications for medical and surgical management of nonobstructive and obstructive type of ulcer, hemorrhage, and gastrojejunal ulcer. Value of alkali therapy. Alkalosis.

5. *Causes of Failure in the Medical Management of Peptic Ulcer*—Fred Kruse, M. D., 916 Fitzhugh Building, 384 Post Street, San Francisco.

   Classification of indications for surgical or medical treatment. Alleviation or removal of factors contributing to formation of ulcer. Adjustment of regimen to type of case and environment. Diet, medication, bowel regulation, management of night and fasting periods. The psychological and nervous influences. Education of patient, length of treatment, and future care.

GENERAL SURGERY SECTION

J. H. Woolsey, M. D., Chairman
909 Medico-Dental Building
490 Post Street, San Francisco

B. S. Chaffee, M. D., Secretary
917 Security Building, Long Beach

D. N. Richards, M. D., Assistant Secretary
404 Medical Building
1904 Franklin Street, Oakland

First Meeting—Casino

Monday, May 6, 2 to 5 p. m.

1. Chairman's Address—*Physiology in Surgery*—John Homer Woolsey, M. D., San Francisco.

2. *Early Diagnosis and Medical Aspects of Intestinal Obstruction*—Verne R. Mason, M. D., 838 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

   Clinical signs and symptoms of importance in diagnosis with especial reference to the position and type of obstruction. The value of the determination of the acid-base equilibrium and electrolyte concentration in a series (approximately twenty-five) of patients with obstruction of the gastro-intestinal tract. Practical applications.

3. *Diagnosis of Intestinal Obstruction by the Flat X-Ray Plate*—Marcus H. Rabwin, M. D., 1371 North Ridgewood Place, Los Angeles, and Ray A. Carter, M. D., 1100 Mission Road, Los Angeles.

   A flat x-ray plate of the abdomen, without administration of contrast media, shows a characteristic distribution of gas shadows which in nearly all cases will not only indicate obstruction, but will localize it in large or small bowel. The method is simple, consumes very little time, causes the patient no discomfort, and is a valuable aid in the early diagnosis of intestinal obstruction.

4. *Acute Intestinal Obstruction*—W. B. Holden, M. D., 821 Medical Arts Building, Portland, Oregon. (By invitation.)

   Early operation, the first twelve or twenty-four hours. Ample midline incision. Complete evisceration of the intestines, which are kept warm with hot saline packs, renewed as they become chilled. Determining the cause of obstruction and relieving it. Emptying the intestines by stripping them from the duodenum to the point of obstruction. Closure of the wound, without drainage. Morphin for the first twenty-four hours following operation and hypertonic salt (3 per cent) subcutaneously for the first two or three days postoperatively. (Motion pictures.)

   Discussion of papers 2, 3, and 4 opened by Fred R. Fairchild, M. D., Woodland; Charles D. Lockwood, M. D., Pasadena; K. S. Davis, M. D., Los Angeles; O. D. Hamlin, M. D., Oakland.

5. *Infection of Abdominal Wall with Bacillus Welchii Following Enterotomy for Bowel Obstruction*—Edmund Butler, M. D., and George K. Rhodes, M. D., Medico-Dental Building, 490 Post Street, San Francisco.

   Discussion opened by Alanson Weeks, M. D., San Francisco, and Robert Wilcox, M. D., Long Beach.

   Considering the presence of *B. welchii* in the intestinal tract, when is emptying of the bowel contents through enterotomy justifiable? When is enterostomy indicated? Report of two cases of infection of the anterior abdominal wall with *B. welchii* following enterotomy.

6. *Improvements in the Miculiez Two-Stage Resection of the Colon*—Ernst Gehrels, M. D., Medico-Dental Building, 490 Post Street, San Francisco.

   Discussion opened by John F. Cowan, M. D., San Francisco.

   The Miculiez procedure has come into disfavor with many surgeons due to the difficulties encountered in the closure of the artificial anus by the "crushing clamp" method. In its place a technique is described for resection of the artificial anus which is much more satisfactory. In view of this improvement the problem of colon resection is discussed. (Lantern slides.)

7. *Acute General Peritonitis*—Robertson Ward, M. D., 814 Fitzhugh Building, 384 Post Street, San Francisco.

   Discussion opened by Wayland A. Morrison, M.D., Los Angeles, and Frank W. Lynch, M.D., San Francisco.

   A rational therapeutic regimen. The mortality in peritonitis is principally due to absorption of highly toxic products present in dilated loops of duodenum and upper jejunum. A rational and effective adjunct to present-day treatment is the use of continuous gastric and duodenal lavage. This paper outlines the general treatment including a description of lavage apparatus. (Lantern slides.)

Union Meeting of Surgical Sections

Casino, Tuesday, May 7, 9 to 11:30 a. m.

Program printed under second meeting of Obstetrics and Gynecology Section. See page 285.

Second Meeting—Casino

Wednesday, May 8, 8:30 to 11:30 a. m.
John F. Binnie Meeting

1. *Welcome: John F. Binnie, M.D., The Man, the Student, the Surgeon*—William J. Mayo, M. D., Rochester, Minnesota.

2. *Circulatory Disturbances of the Extremities*—Frederick Leet Reichert, M. D., Stanford Hospital, San Francisco.

   Discussion opened by Dexter N. Richards, M. D., Oakland, and Robert Wilcox, M. D., Long Beach.

Disturbances of the physiological balance in an extremity may be primarily arterial, venous or lymphatic in their origin, or, by reason of the close relationship and interdependence of these three systems, the disturbance may be the result of their combined dysfunction. Two rather neglected points are emphasized: first, the great collateral circulation characteristically present in thrombo-angiitis obliterans, and, secondly, the significance of lymphatic function in the mechanism of circulatory balance.

3. *The Treatment of Acute Cholecystitis*—Stanley H. Mentzer, M. D., Physicians Building, 516 Sutter Street, San Francisco.

Discussion opened by Andrew S. Lobingier, M. D., Los Angeles, and Harold Brunn, M. D., San Francisco.

A review of the cases of acute cholecystitis occurring at the San Francisco Hospital during the past six years. The cases of acute gangrenous cholecystitis are considered in detail, as regards the time interval before surgery was instituted, the type of operation performed, the anesthetic, the drains used, etc. Mortality statistics are discussed and autopsy findings analyzed. The conclusions emphasize the importance of early surgery and of conservatism when each is indicated and stress the value of cholecystectomy rather than simple drainage whenever possible. (Lantern slides.)

4. *Treatment of Pancreatitis as Related to Gall-Bladder Infection*—John H. Breyer, M. D., 701 Professional Building, 65 North Madison Avenue, Pasadena.

Discussion opened by C. G. Toland, M. D., Los Angeles, and Charles Dukes, M. D., Oakland.

Statistics of incidence of pancreatitis to biliary tract disease are given. The pathological changes, especially the gross changes as demonstrable to the operating surgeon, are emphasized. Treatment is arranged under the headings of (1) acute pancreatitis, (2) chronic pancreatitis, (3) subacute pancreatitis, (4) pancreatitis developing after operations on the biliary tract, (5) pancreatic asthenia. Case reports.

5. *Hemolytic Icterus and the Technique of Splenectomy*—Leo P. Bell, M. D., Woodland.

Discussion opened by Charles T. Sturgeon, M. D., Los Angeles, and Ernest H. Falconer, M. D., San Francisco.

Characterized by splenomegaly, jaundice, absence of bile pigments in urine, presence of coloring matter in stools, and diminished resistance of erythrocytes to hemolysis. Etiology based on toxic or infectious process. Types: congenital and acquired. Jaundice due to accumulation in liver of products of cell disintegration; liver unable to care for them, and certain amount altered pigment absorbed into blood stream. Splenectomy generally advised. Two cases reported.

6. *The Treatment of Varicose Veins by the Injection of Sclerosing Solution*—Thomas O. Burger, M. D., and Hall G. Holder, M. D., 1301 Medico-Dental Building, 233 A Street, San Diego.

Discussion opened by Daniel Crosby, M. D., Oakland, and J. N. Hoover, M. D., Long Beach.

By means of the motion picture a complete story of this subject will be visualized. This will include historical sketch and introduction, a representation of the normal venous circulation of the extremities, continuing with the etiology of varicosities and pathologic changes. Treatment will include selection of suitable cases, technique with resultant action of sclerosing solutions, and end-results.

Third Meeting—Casino

Thursday, May 9, 8:30 to 11 a. m.

1. Business meeting.

2. *Local Anesthesia — History* — Chauncey V. Leake, Ph. D., University of California Medical School, Fourth and Parnassus Avenues, San Francisco. (By invitation.)

3. *Traumatic Pneumocephalus, with Report of Cases*—Carl W. Rand, M. D., 1023 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

Discussion opened by Howard C. Naffziger, M. D., San Francisco, and Edward B. Towne, M. D., San Francisco.

Skull fractures in the neighborhood of the frontal sinuses, or cribriform plate, are occasionally accompanied by leakage of cerebrospinal fluid from the nose, or the passage of air into the frontal lobe through a rent in the dura. Either condition constitutes a serious complication. Author's experiences reviewed.

4. *Goiter Operations in Mental Diseases—A Study Based on About Fifteen Consecutive Thyroidectomies on Patients with Major Psychoses at Stockton State Hospital, with Follow-Up Records of One Year or More Following Operation*—George H. Sanderson, M. D., and Margaret Smyth, M. D., 809 Medico-Dental Building, Stockton.

Discussion opened by Thomas G. Inman, M. D., and C. G. Toland, M. D., Los Angeles.

Reviews literature. Discusses question of etiological relationship between goiter and mental diseases of this type, and question of operation on such patients. Series discussed statistically with regard to etiology, diagnosis, possible relationship, operation performed, follow-up records, and results.

5. *Transplantation of Fascia to Muscle*—Sylvan L. Haas, M. D., Shreve Building, 210 Post Street, San Francisco.

Discussion opened by Edward C. Bull, M. D., San Francisco, and Charles E. Phillips, M. D., Los Angeles.

This paper deals with a review of the literature, including the controversy between Seelig, Choute, Koonz, and others, regarding the union of fascia to muscle, and the rôle it plays in hernia operations. It also gives the result of author's own experiments on the union of transplanted fascia to muscle with the clinical applications, in which a free fascia graft is united to trapezius and then inserted into the humerus to replace a paralyzed deltoid. (Lantern slides.)

6. *A Study of End-Results in Fractures of the Neck of the Femur*—John C. Wilson, M. D., 410 Medical Office Building, 1136 West Sixth Street, Los Angeles.

Discussion opened by E. W. Cleary, M. D., San Francisco, and Maynard C. Harding, M. D., San Diego.

Digest of a certain number of cases which will be discussed from the following angles: (1) Influence of age upon the bony repair of fractures of the femoral neck. (2) An evaluation of various types of treatment commonly used in these conditions with a determination of the efficacy of each as related to this particular series of cases. (Lantern slides.)

INDUSTRIAL MEDICINE AND SURGERY SECTION

D. P. Thurber, M. D., Chairman
901 Subway Terminal Building
417 South Hill Street, Los Angeles

J. W. Shilling, M. D., Secretary
103 Medical Office Building
1136 West Sixth Street, Los Angeles

First Meeting—Room B

Monday, May 6, 2 to 5 p. m.

1. Opening Address—Floyd Thurber, M. D., Los Angeles.
2. *The Economic Aspect of Injuries to the Back in Industrial Accident Cases*—Halbert W. Chappell, M. D., 111 Medical Office Building, 1136 West Sixth Street, Los Angeles.

   The type of injury to the back, as strain, sprain, fracture or dislocation, its exact location, the condition of the back and patient's general condition at the time of the injury must be accurately determined immediately. Cases reported which demonstrate economic loss. Treatment, chiefly by active measures, will remove the discomfort and disability with a minimum of expense and time.
3. *A Statistical Study of Fractures of the Spine with and without Operation* — Ross W. Harbaugh, M. D., 518 Union Square Building, 350 Post Street, San Francisco.

   Reviewing the cases of crushing fracture of the spine and giving the end-results in cases with and without operation, the object being to set forth the relative merit of each.
4. *Treatment of Fractures of the Carpal Scaphoid*—Ralph Soto-Hall, M. D., Union Square Building, 350 Post Street, San Francisco.

   These fractures are accompanied by considerable permanent disability. Review of literature does not reveal any method of treatment which is accompanied by good results.

   A series of cases were treated by immobilization in plaster with the hand in marked radial deviation and the thumb fully abducted. This position forcefully places the fragments in their proper apposition. This method is reported because of the consistently good results.
5. *The Use of Zinc Gelatin Dressings for Traction—With Demonstration*—Leo Eloesser, M. D., 1224 Medico-Dental Building, 490 Post Street, San Francisco.

   The technique of applying zinc gelatin bandages for the support of the lower extremities and for traction. (Lantern slides with demonstration.)

Second Meeting—Room B

Wednesday, May 8, 9 to 11:30 a. m.

1. *Pelvic Fractures*—Maynard C. Harding, M. D., 425 Electric Building, 861 Sixth Street, San Diego.

   Their increasing frequency and severity. Four types: (*a*) Fractures of the wing of the ilium. (*b*) Fractures of the acetabulum. (*c*) Fractures of the sacro-iliac region. (*d*) Fractures of the rami. Treatment by means of a pelvic sling.
2. *Injuries of the Urogenital Tract*—Burnett W. Wright, M. D., 1137 Roosevelt Building, 727 West Seventh Street, Los Angeles.

   Preëxisting and often unsuspected disease of the urogenital tract is an important factor in cases of apparent injury to these structures. This is especially true where the trauma appears too slight to have produced the injury. From a medico-legal standpoint it is obviously important to determine the presence or absence of such conditions. A thorough and complete urological examination is essential for the diagnosis, especially in suspected injury to the upper urinary tract. (Lantern slides.)
3. *Second Type Arthritis in Relation to Treatment of Some Surgical Conditions* — Arthur L. Fisher, M. D., 212 Medical Building, 909 Hyde Street, San Francisco.

   What is meant by second type arthritis. Pathology and histogenesis of same. Its relation to treatment of fractures near joints exemplified by Colles' fracture. Its relation to treatment of humerus. Its relation to treatment of some stiff and painful conditions about the shoulder.
4. Business meeting.

NEUROPSYCHIATRY SECTION

S. D. Ingham, M. D., Chairman
1252 Roosevelt Building
727 West Seventh Street, Los Angeles

H. G. Mehrtens, M. D., Secretary
Stanford Hospital, San Francisco

First Meeting—Room D

Monday, May 6, 2 to 5 p. m.

1. Chairman's Address—Samuel D. Ingham, M. D., Los Angeles.
2. *Surgical and Nonsurgical Facial Neuralgias—Their Symptoms, Diagnosis, and Treatment*—Mark A. Glaser, M. D., 633 South Berendo Street, Los Angeles.

   Pain in the face may be caused by involvement of the fifth, seventh, eighth, ninth, and tenth cranial nerves and the sphenopalatine ganglion. The relief of pain is an important surgical problem, and operative section of nerves is indicated in most of these cranial nerve neuralgias, as well as the secondary forms due to malignancy. (Lantern slides.)
3. *Treatment of Parkinson's Syndrome with Fever Produced by Baths*—Pearl S. Pouppirt, M. D., Stanford Hospital, San Francisco.

   Technique of producing fever. Advantages and disadvantages of this method. Comparison of results obtained by baths with other therapy. (Motion pictures.)
4. *Psychoneurosis in Relation to Industrial Accidents*—Henry Douglas Eaton, M. D., 811 Medical Office Building, 1136 West Sixth Street, Los Angeles.

   Difficulty in diagnosis. Estimation of organic factors. Deleterious results of frequent examinations and hearings. Compensation as an etiological factor. Malingering. Variation in legal and medical attitudes. Suggestions for improvement in treatment.

Second Meeting—Room D

Tuesday, May 7, 9 to 11:30 a. m.

1. *Psychiatry in a General Hospital*—Charles L. Allen, M. D., 939 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

   Mental phenomena are reactions to stimuli and may become pathological through disease, through inability to meet situations or through both. Importance of the mental make-up in estimating symptoms of physical disease. Psychopathic reaction forms and psychoses. In the general hospital the psychiatrist is of aid as consultant and in stimulating "psychiatric-mindedness" in physicians and nurses.

2. *The Legal Responsibility of the Psychiatric Patient*—Joseph Catton, M. D., 825 Medico-Dental Building, 490 Post Street, San Francisco.

   Criminal responsibility as a socialized anger-fight mechanism. Man by nature seeks to punish the criminal. The individual concedes the right to punish to the state. The state delegates this duty to the law. The psychiatrist feels that certain mental disorders should remove responsibility, but the law necessarily defines the quality of mental disorder which the psychiatrist must find to satisfy the rational average man that the criminal should not be punished.

3. *Mental Hygiene Problems, Psychiatry and the General Practitioner*—Glen E. Myers, M. D., 300 Professional Building, 1052 West Sixth Street, Los Angeles.

   The usual conception of the psychoses as well-defined disease entities renders understanding and treatment difficult. The psychoses should rather be regarded as reactions of the individual as a whole, in which heredity, environment, disease and accompanying biochemico-physiological processes influence adaptation to the environment.

4. Business meeting.

OBSTETRICS AND GYNECOLOGY SECTION

H. N. Shaw, M. D., Chairman
901 Pacific Mutual Building
523 West Sixth Street, Los Angeles

W. H. Gilbert, M. D., Secretary
1105 Medico-Dental Building
746 Francisco Street, Los Angeles

First Meeting—Silver Grill

Monday, May 6, 2 to 5 p. m.

1. *Pulmonary Edema Occurring During Pregnancy*—Harry K. Bonn, M. D., 812 Brockman Building, 520 West Seventh Street, Los Angeles.

   Discussion opened by Moses H. Ross, M. D., Los Angeles.

   A pulmonary edema of sudden onset without convulsions or coma occurring during pregnancy or labor, frequently with rapidly fatal termination is apparently of some rarity. The type of pulmonary edema under discussion is not related to the terminal phase of an eclampsia, wherein cardiac disease is the prime etiologic factor. Pathology, symptoms, prognosis, treatment. Illustrative cases are discussed.

2. *Inversion of Uterus—Report of Two Cases*—Edward N. Ewer, M. D., 251 Moss Avenue, Oakland.

   Discussion opened by John C. Irwin, M. D., Los Angeles.

   This paper deals with the results of the treatment of over five hundred cases of inversion of the uterus reported in the literature. These reports show a high mortality for immediate manual reposition and seem to prove the greater safety of operative methods following the recovery of the patient from the initial shock.

3. *The Ascheim-Zondex Hormone Test for Pregnancy—Exhibition of Autopsies on Mice*—Harry E. Kaplan, M. D., 611 Medico-Dental Building, Stockton.

   Discussion opened by Ludwig A. Emge, M. D., San Francisco.

   During pregnancy striking overproduction hormone of anterior lobe of pituitary gland, leading to excretion in urine. Subcutaneous injection of urine of pregnant women into immature female mice followed by alterations in ovaries, manifested by visible swelling, congestion, hemorrhages, and the premature maturation of ovarian follicles. Exhibition autopsies of previously injected mice.

4. *The Care of the Bladder Following Bladder Operations*—R. Glenn Craig, M. D., Medico-Dental Building, 490 Post Street, San Francisco.

   Discussion opened by Phil Boller, M. D., Los Angeles.

   Postoperative catheterization and occasional cystitis is not uncommon. The procedure recommended has reduced the incidence of postoperative catheterizations more than half in actual number of patients catheterized. Considering that many of these patients would have had to be catheterized more than once, the actual number of catheterizations is materially reduced. Comparative discussion with common procedures.

Second Meeting—Casino

Program for Union Meeting of Surgical Sections

Tuesday, May 7, 9 to 11:30 a. m.

1. *The Coexistence of Goiter and Uterine Fibromata*—Albert Falls, M. D., Chicago, Illinois. (By invitation.)

   Discussion opened by Frank W. Lynch, M. D., San Francisco.

   The interrelationship between the genital and endocrine system. Histopathology of fibroids. The methods of thyroid stimulation: (*a*) Toxin production. (*b*) Irritation of sympathetic nervous system. (*c*) Influence of other ductless glands. A clinical analysis of the evidence of hyperthyroidism in one thousand cases of fibroids. The basal metabolic rate in patients with fibroid uteri. The management of patients with thyroid and fibroid disease.

2. *Symposium on Treatment of Cancer of Uterus:*

   (*a*) The Surgical Treatment—Hans von Geldern, M. D., 1110 Medico-Dental Building, 490 Post Street, San Francisco.

   Discussion opened by Frank W. Lynch, M. D., San Francisco.

   General indications for the application of surgical treatment. Selection of cases for operation. Radical operations in vogue. Operative mortality and complications. Palliative procedures. End-results.

   (*b*) The Cautery Treatment—James F. Percy, M. D., 1030 South Alvarado Street, Los Angeles.

   Discussion opened by William H. Gilbert, M. D., Los Angeles.

   (*c*) The Radiological Treatment—Albert Soiland, M. D., 1407 South Hope Street, Los Angeles.

   Discussion opened by Lyell C. Kinney, M. D., San Diego.

   Radiation is the generally accepted method of treatment in both early and advanced cervical malignancy and seems as efficacious as surgery in early fundus malignancy, being indicated exclusively in advanced cases. Study of histological cell structure with gradation of malignancy is important for prognosis. Roentgen ray should always be used with radium.

PATHOLOGY AND BACTERIOLOGY SECTION

W. H. Kellogg, M. D., Chairman
State Hygienic Laboratory, Berkeley

W. T. Cummins, M. D., Secretary
Southern Pacific Hospital, San Francisco

First Meeting—Room C

Tuesday, May 7, 9 to 11:30 a. m.

1. Chairman's Address—Wilfred H. Kellogg, M. D., Berkeley.

2. *The Kahn Precipitation Test for Syphilis*—Newton Evans, M. D., Los Angeles County General Hospital, Los Angeles.

   Report of results of the Kahn and the Kolmer modification of Wassermann tests of about 15,000 sera shows 96.7 per cent of relative agreement between the two tests. The Kahn test has a slight advantage in detecting larger numbers of positive cases. Advantages of the Wassermann, Kahn, and parallel tests are discussed.

3. *The Bacteriophage as a Therapeutic Agent*—E. W. Schultz, M. D., Stanford University, Palo Alto.

   The results of various clinical investigators who have employed the bacteriophage as a therapeutic agent in infectious diseases are reviewed. The author discusses its limits and the bearing which these limitations have on the use of commercially distributed bacteriophage. There is a plea for sound methods and an open mind in studying this product.

4. *The Physiologic and Pathologic Significance of the Lipochromes*—Charles L. Conner, M. D., University of California, San Francisco.

   The lipochromes, of which carotin and xanthophyll are the most important, are taken in with food, and some are stored in places where lipoids are deposited. The remainder are excreted via the intestinal tract, or are hepatically broken down. The pigments appear in abnormal quantities in the blood and skin when eaten in large quantities or when there is faulty fat metabolism.

Second Meeting—Room C

Wednesday, May 8, 9 to 11:30 a. m.

1. *The Pathology of Spontaneous Heart Rupture*—Adelbert M. Moody, M. D., St. Francis Hospital, San Francisco, and A. A. Berger, M. D., 104 Clement Street, San Francisco.

   This report will consist of a discussion of the pathology of spontaneous cardiac rupture present in hearts removed from bodies referred to the coroner's office for determination of causes for death. Specimens and lantern slides, demonstrating the gross and microscopic changes present in this series will be shown.

2. *Some Aspects of Experimental Food Poisoning*—J. C. Geiger, M. D., Hooper Foundation, University of California, San Francisco.

   The present theory of the cause of food poisoning by "carriers" or by primarily infected meat is discussed. Subsequent incubation of the contaminated food by various means allows the bacteria to produce a toxin or in the cooking certain substances may become soluble and toxic. Experimental evidence is offered to clarify the situation.

3. *Systemic Blastomycosis*—George D. Maner, M. D., Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles, and Roy W. Hammack, M. D., 1003 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

   Review of literature. Report of three cases with autopsy findings. Comparison with other fungous infections.

4. *A Review of Human Torula Infections*—Howard A. Ball, M. D., Los Angeles County General Hospital, Los Angeles.

   The cases are classified as systemic and local. Two cases involving the central nervous system, one a "pseudotumor" type and one a meningeal type are reported, including necropsy findings. The importance to clinician and pathologist of demonstrating the etiological organism in cases of suspected tuberculous meningitis in adults, is made evident.

PEDIATRICS SECTION

E. S. Babcock, M. D., Chairman
820 Medico-Dental Building
1127 Eleventh Street, Sacramento

Guy L. Bliss, M. D., Secretary
1723 East Street, Long Beach

First Meeting—Breakfast Room

Tuesday, May 7, 9 to 11:30 a. m.

1. Business meeting.

   Report of the nominating committee and election of officers for the coming year.

2. *Symposium on Pulmonary Tuberculosis of Infancy and Childhood.*

   (*a*) The X-Ray Findings in the Different Types of Pulmonary Tuberculosis in Childhood—Rolla G. Karshner, M. D., 510 Lucas Avenue, Los Angeles.

   Pulmonary tuberculosis in infants and children may be recognized from the appearance and distribution of the infiltrations on roentgenograms. Examples of (1) primary tuberculosis, either as the focal primary lesion or as caseous pneumonia; (2) tuberculosis of intrathoracic lymph nodes; (3) hilum tuberculosis; (4) miliary tuberculosis; and (5) the more rare apical or other adult forms will be shown and discussed. (Lantern slides.)

   (*b*) The Immunobiologic Reaction in Tuberculosis of Infancy and Childhood—Roy E. Thomas, M. D., 403 Medical Office Building, 1136 West Sixth Street, Los Angeles.

   Primary infection. Tubercle. Relationship of tuberculosis to lymphatic systems. Sensitization of cells. Secondary inoculation. Allergic reaction. Proliferative and exudative processes. Relationship of allergy to clinical symptoms.

   (*c*) The Clinical Diagnosis—William M. Happ, M. D., 911 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

   Signs and symptoms different from adults. Important are fever, anorexia, restlessness, pallor, and digestive disturbances. History of exposure of value. Tuberculin test of great value during first two years. X-ray important in diagnosis and distinguishing types. Physical signs insignificant or lacking in many cases. Diagnosis not from any one clinical sign or procedure, but from combination.

   (*d*) Treatment—C. L. Ianne, M. D., Santa Clara Hospital, San Jose.

   As treatment of childhood tuberculosis extends over a number of years, a definite program of rest, exercise, and other activities should be carried out in the home, school, and preventorium. Rest at school for primary grade children should be given with gymnasium as a regular prophylactic measure of the health program.

Second Meeting—Breakfast Room

Thursday, May 9, 8:30 to 11 a. m.

1. Chairman's Address—*Masked Otitis Media and Mastoiditis in Infancy*—Edward S. Babcock, M. D., Sacramento.

2. *Everyday Problems of the General Practitioner.*

   (*a*) The Treatment of Meningococcus Infection—EdwardB. Shaw, M. D., 412 Fitzhugh Building, 384 Post Street, San Francisco.

   Meningococcic infection may frequently be recognized in the systemic phase where purpuric manifestations are seen. These cases may be

arrested before the invasion of the meningococci has occurred. Proper treatment of meningitis is dependent upon prompt diagnosis and adequate laboratory control from the onset, particularly with regard to the specificity of serum. Pacific Coast strains are poorly controlled by standard serum.

(*b*) The Treatment of Bronchopneumonia—Enos Paul Cook, M. D., 215 Sainte Claire Building, San Jose.

A brief statement of the etiology and pathology, and symptoms of bronchopneumonia. Preëxisting conditions which favor its development. The importance of a very definite and carefully carried out plan of general hygiene, nursing care, and nourishment. Medical treatment. Blood transfusion. Complicating or associated conditions which demand prophylactic consideration and active treatment, with special reference to dehydration and otitis media.

(*c*) The Child Who Will Not Eat—Henry E. Stafford, M. D., 242 Moss Avenue, Oakland.

Despite increased knowledge of nutrition, the child who will not eat offers one of our most common and difficult problems. Infection, allergy, and psychological maladjustment are the causative factors.

Once foci of infection have been removed and sensitization antigens have been eradicated from diet and surrounding, our treatment is still incomplete without education of parents in proper habits of living and eating by their children.

(*d*) The Symptoms and Signs of Acute Upper Respiratory Tract Infection in Children—Clifford D. Sweet, M. D., 242 Moss Avenue, Oakland.

Fever, abdominal pain, vomiting, diarrhea, and convulsions are caused most frequently by upper respiratory tract infection.

The presence of upper respiratory tract infection is overlooked by the physician because (1) he has not its causal relationship in mind; (2) he does not use an adequate light; and (3) the patient is seen too early or too late in the course of the infection to observe its presence without careful and repeated examinations.

RADIOLOGY SECTION

L. C. Kinney, M. D., Chairman
510 Medico-Dental Building
233 A Street, San Diego

W. B. Bowman, M. D., Secretary
1155 Roosevelt Building
727 West Seventh Street, Los Angeles

First Meeting—Room D

Wednesday, May 8, 9 to 11:30 a. m.

1. Chairman's Address.
2. *Treatment of Disorders of Menstruation by Irradiation of Hypophysis and Ovaries*—F. H. Rodenbaugh, M. D., 321 Medico-Dental Building, 490 Post Street, San Francisco.

   Many disorders of menstrution are amenable to mild irradiation of pituitary or ovary. In properly selected cases the method is without danger. Classification of cases suitable for treatment. Result of treatment over five-year period with case histories and valuation of results.
3. *Intra-oral Cancer and Its Treatment*—Orville N. Meland, M. D., 1407 South Hope Street, Los Angeles.

   Intra-oral cancer, even when recognized early is a serious disease. A great number of patients are hopeless when they first apply for treatment. Platinum radon implants surrounding the lesion, supplemented by radiation to the regional lymph nodes, and electrocoagulation when indicated, offer the most for the patient.
4. *The Roentgen Examination of the Sacroiliac Joint*—William E. Chamberlain, M. D., Stanford Hospital, Clay and Webster Streets, San Francisco.

   Even when pathologically relaxed the sacroiliac synchondrosis rarely exhibits motion sufficient to be seen in the ordinary roentgenograms, but the motion is rotatory and the magnified movements at the symphysis pubis can easily be demonstrated by our special technique. Both subluxations and relaxations have been successfully diagnosed.
5. *Conference on Radiological Consultation*—Leader, Morton R. Gibbons, M. D., 515 Union Square Building, 350 Post Street, San Francisco.
   (*a*) Radiology in Industrial Medicine—Morton R. Gibbons, M. D., San Francisco.
   (*b*) Radiology in Medicine—John H. Musser, M.D., New Orleans, Louisiana.
   (*c*) Radiology in Obstetrics—Fred A. Falls, M. D., Chicago, Illinois.
   (*d*) Radiology in Surgery.

Second Meeting—Room D

Thursday, May 9, 8:30 to 11 a. m.

1. Business meeting.
2. *Hilum Adenitis of Childhood*—John W. Crossan, M. D., 522 Westlake Professional Building, 2007 Wilshire Boulevard, Los Angeles.

   A study of the significance of the roentgen findings as a method of differentiating pulmonary tuberculous adenitis and adenitis resulting from respiratory or pulmonary mixed infections.
3. *Lymphoblastoma of Stomach*—Howard E. Ruggles, M. D., 320 Fitzhugh Building, 384 Post Street, San Francisco, and Robert Stone, M. D., University of California Hospital, Third and Parnassus Avenues, San Francisco.

   Lymphoblastoma of the stomach is considered with special reference to the possibility of diagnosing it by x-ray. The difficulty is seen to be in differentiating it from carcinoma. The value of the differentiation lies in the improved prognosis when x-ray therapy is used for lymphoblastoma. Some cases are presented. (Lantern slides.)
4. *The Roentgen Diagnosis of Intussusception with a Report of Two Cases*—Kenneth S. Davis, M. D., St. Vincent's Hospital, 1151 Sunset Boulevard, Los Angeles, and Carl Parker, M. D., 65 North Madison Avenue, Pasadena.

   The usual roentgenographic findings in intussusception are those of intestinal obstruction and the exact diagnosis is not made until surgical exploration is done. In these two cases—one at the Pasadena Hospital, and the other at St. Vincent's Hospital—the authors were able to demonstrate a loop of gas-filled small bowel within the cecum. In both cases the cause of the intussusception was a primary lymphosarcoma of the terminal ileum.
5. *A Roentgenologic Consideration of Malignant Lesions of the Lung*—B. R. Kirklin, M. D., Section of Radiology, The Mayo Clinic, Rochester, Minn.

   The incidence of primary malignant growths of the lung has shown a marked increase both in this country and abroad during the last few years. Recognition of this condition is fairly easy by careful roentgenologic and bronchoscopic examination. The roentgenologic appearance of primary carcinoma of the bronchus is rather typical and should provide a means for early recognition. However, unilateral inflammatory lesions of the lung situated near the hilum are frequently confused with primary malignant growths of the bronchus, and for this reason tissue should be removed by biopsy by a skilled bronchoscopist in order to obtain an accurate microscopic diagnosis.
6. Lantern slide demonstration.

UROLOGY SECTION

W. B. Parker, M. D., Chairman
1107 Brack Shops Building
527 West Seventh Street, Los Angeles

C. P. Mathé, M. D., Secretary
844 Phelan Building
760 Market Street, San Francisco

First Meeting—Breakfast Room

Monday, May 6, 2 to 5 p. m.

1. Chairman's Address—Wilbur B. Parker, M. D., Los Angeles.

2. *Traumatic Rupture of the Kidney*—Edward W. Beach, M. D., 306 Medico-Dental Building, 1127 Eleventh Street, Sacramento.

   Discussion opened by Miley B. Wesson, M. D., San Francisco.

   The paper treats of six cases from the author's practice varying in age from three to forty-four years. Five were treated surgically. It touches upon the illustrated etiology, symptomatology, diagnosis, and operative treatment, with deduced conclusions. Lantern slides of x-ray findings and demonstrated pathology are used as a supplement.

3. *Kidney Tumors with Discussion of Surgical Problems Involved*—Frank Hinman, M. D., 603 Fitzhugh Building, 384 Post Street, San Francisco.

   Discussion opened by A. Elmer Belt, M. D., Los Angeles.

   Introduction. Perineal prostatectomy can be successfully performed in one way only. Numerous modifications of method are relatively insignificant. Anatomical considerations and reasons for the operation being performed successfully only one way. Structural and functional considerations. The requirements of learning properly and safely to perform the operation. Can it be taught successfully or not? Summary of replies to questionnaire sent to the men who have taken postgraduate work in urology at the University of California.

4. *Destructive "Calculus Disease"*—Franklin Farman, M. D., 709 California Medical Building, 1401 South Hope Street, Los Angeles.

   Discussion opened by H. Kreutzmann, M. D., San Francisco, and W. B. Dakin, M. D., Los Angeles.

   A clinical study of a series of cases illustrating the progressive destructive course of kidney and ureteral calculi, with a discussion of the factors influencing prognosis.

5. *Foreign Bodies in the Kidney, Ureter, and Urethra*—William E. Stevens, M. D., 602 Flood Building, 870 Market Street, San Francisco.

   Discussion opened by Robert V. Day, M. D., Los Angeles.

   While foreign bodies other than calculi are frequently found in the bladder, they are very seldom encountered in the ureter. The literature contains but few instances of this unusual condition. Modes of entrance. The effect of antiperistalsis and regurgitation. Review of the literature. Report of two cases.

6. *Bilateral Hydronephrosis*—Albert J. Scholl, M. D., 721 Pacific Mutual Building, 523 West Sixth Street, Los Angeles.

   Discussion opened by Frank Hinman, M. D., San Francisco, and A. Elmer Belt, M. D., Los Angeles.

   A case of bilateral hydronephrosis and nephritis, surgically treated, is reported. The size of the renal pelves returned to normal, kidney function improved markedly, and the patient's general health at the present time is excellent. The reasons for the various types of surgical procedures employed in this case are discussed.

Second Meeting—Silver Grill

Tuesday, May 7, 9 to 11:30 a. m.

1. *Bladder-Neck Contracture*—Harry W. Martin, M. D., 1010 Quinby Building, 650 South Grand Avenue, Los Angeles.

   Clinical Manifestations. Masked symptomatology at times. Technical diagnosis. Treatment. (*a*) Early methods: Simple division with Blizzard probe-pointed knife; same method supplemented by uterine dilator; Bottini and Chetwood cautery operation. (*b*) Modern technique: Young's median bar excisor; Braasch's modification; Bumpus' hemostatic technique; Caulk's punch; Stern's resectotherm technique; Tolson's method of hemostasis, and Collings' electrotome technique. Open methods: MacGowan technique; Keyes' rongeur operation and Buerger's operation. Summary.

2. *Prostatic Median Bar and Its Treatment*—Miley B. Wesson, M. D., 939 Medico-Dental Building, 490 Post Street, San Francisco.

   The etiology, pathology, symptomatology, differential diagnosis and methods of treatment, particular attention being paid to complications and methods of avoiding them. (Lantern slides.)

3. *Relief of Certain Types of Prostatic Obstruction by Electrocautery*—Charles P. Mathé, M. D., 844 Phelan Building, 760 Market Street, San Francisco.

   Discussion of above three papers opened by Robert V. Day, M. D., Los Angeles, and George Hartman, M. D., San Francisco.

   Introduction. Historical note. Report of cases. Pathology apropos to types suitable for relief by electrocoagulation. Symptomatology. Treatment. Indication and contraindications. Preoperative preparation, operative technique, and postoperative care. Complications. Results. Conclusions. Advantage over open operation. Preservation of reproductive power.

4. *Interstitial Cystitis*—Anders Peterson, M. D., and Benjamin H. Hager, M. D., 810 Medical Office Building, 1136 West Sixth Street, Los Angeles.

   Discussion opened by William E. Stevens, M. D., San Francisco.

   A review of a group of cases of interstitial cystitis is presented, together with a demonstration of the pathological changes which occur in the bladder wall. Empirical procedures of treatment and the results of both overdistention of the bladder and transurethral electrocoagulation, or a combination of the two methods, are discussed. (Lantern slides.)

5. *Radical Treatment of Cancer of the Bladder*—Robert C. Coffey, M. D., Portland, Oregon. (By invitation.)

   Discussion opened by Frank Hinman, M. D., San Francisco.

   Carcinoma of the bladder, if treated early, is very promising. Symptoms early, metastases late. Early radical treatment has been discouraging because there has been no practical way of making a reservoir for the urine. Therefore most cases of cancer of the bladder receive repeated palliative treatments. We may now successfully transplant the ureters into the large bowel, thereby providing a comfortable and efficient reservoir and permitting the complete destruction or removal of the bladder. Plan of procedure.

6. *Vesical Diverticula in the Female, with Report of Three Cases*—Jay J. Crane, M. D., 514 Westlake Professional Building, 2007 Wilshire Boulevard, Los Angeles.

   Discussion opened by Herbert A. Rosenkranz, M. D., Los Angeles.

   Introduction. Diverticula in women comprise 10 per cent of all reported cases. Etiology.

Diverticula variously believed to be congenital, acquired or either acquired and congenital. The three cases reported have acquired diverticula. Symptoms: Due to infection and poor drainage aggravated by ammoniacal urine. Diagnosis: Most diverticula are found during routine urological examinations. The roentgen ray and cystoscope are essential in demonstrating number, size, ability to drain, and location. Treatment: Removal of the diverticula without removal of obstruction below the bladder not successful.

Third Meeting—Breakfast Room

Wednesday, May 8, 9 to 11:30 a. m.

1. Business meeting.
2. *Treatment of Gonorrhea by Mercurochrome with Glucose Intravenously*—Francis H. H. Redewill, M. D., 686 Flood Building, 870 Market Street, San Francisco; James E. Potter, M. D., U. S. N.; and A. Garrison, M. D., U. S. N., San Francisco.

   Discussion opened by Lionel P. Player, San Francisco.

   Corroborative recent reports.. Bacteriostatic and chemo-immuno-therapeutic action of drug. Further experimental work with trypanosomes in mice. Tabulated report of three thousand cases. Foreign proteid—preparation and how administered, a potent therapeutic agent as an adjunct to the dye and glucose. Diathermy—its various forms of application briefly discussed; infra-red light in acute and sinusoidal low-volt currents in chronic cases. Summary. References.
3. *Pyuria in Children*—Albert Meads, M. D., 251 Moss Avenue, Oakland.

   Discussion opened by George Reinle, M. D., Oakland.

   Infection in the urinary tract of children as demonstrated by pyuria is common. Acute cases are medical, and chronic cases are urological. Definition of a chronic case. Classification of chronic pyuria. Importance of stasis as a forerunner of infection. Conditions favoring stasis, congenital and acquired. Congenital anomalies in cases of chronic pyuria as demonstrated by a urological examination. Case reports.
4. *Christian Science in Urology*—Victor Vecki, M. D., Physicians Building, 516 Sutter Street, San Francisco.

   Discussion opened by F. S. Dillingham, M. D., Los Angeles, and Charles P. Mathé, M. D., San Francisco.

   Disregarding the question of creeds, serious protest is made against attendance on a sick fellow-being by any person who is lacking in knowledge of anatomy, physiology, and pathology. Personal experience, ludicrous and tragic case stories prove urologists morally and financially not vulnerable, but suffering sometimes pangs of pity for the victims of greedy quackery.
5. *Treatment of Pyogenic Epididymitis*—Henry Kreutzmann, M. D., 1195 Bush St., San Francisco.

   Discussion opened by Robert V. Day, M. D., Los Angeles.

   This paper deals with various theories as to the modes of transmission of bacteria from the posterior urethra to the epididymis. The danger of producing an infection in the epididymus together with the precautions to be taken to prevent an occurrence of this condition are fully discussed. A description is given of the various methods of treatment which have been found by the author to be of greatest value in different cases.
6. *Emulsified Iodized Rapeseed Oil (Campiodol)—Its Use as a Pyelographic Medium*—A. A. Kutzmann, M. D., Wilshire, Medical Building, 1930 Wilshire Boulevard, Los Angeles.

   Discussion opened by Mark A. Glaser, M. D., Los Angeles.

   Campiodol is an iodized oil (rapeseed oil) containing approximately 43 per cent iodin. To adapt it to urographic use, a stable emulsion was made, using campiodol, acacia, and water: this results in a compound, miscible with water (urine) and lowered viscosity, properties not possessed by other iodized oils.

   Emulsified campiodol as a pyelographic medium is inert, nonirritating to the urinary mucous membranes, nontoxic, giving excellent shadowgraphic pictures as to detail and intensity. It has been used in fifty cases with a minimum of irritative symptoms and, therefore, possesses an advantage of 12½ per cent radium iodid.

ENTERTAINMENT COMMITTEE

For Women Guests

Mrs. J. F. Churchill, *Chairman*
Dr. Frances Elliott, *Assistant Chairman*
Mrs. M. C. Harding, *Information and Registration*
Mrs. T. Coe Little, *Transportation*
Mrs. S. A. Durr, *Luncheon*
Miss May Lee, *Golf*
Mrs. J. E. Jennison, *Bridge*
Mrs. F. H. Mead, *Reception*

MONDAY, MAY 6

3:00 p. m. to 5 p. m.

Reception and tea at Mitchell Art Gallery in honor of Mesdames Kiger and Gibbons

TUESDAY, MAY 7

Ladies luncheon at Agua Caliente. Motion pictures in ballroom. Boat trips. Golf tournament

TUESDAY EVENING

Dinner dance

Main dining room, Hotel del Coronado

WEDNESDAY, MAY 8

Afternoon—Sightseeing busses. Medical women's trip. Motion pictures in ballroom.

Evening—Bridge and informal dance in Casino

ENTERTAINMENT PROGRAM

Announcement of San Diego Committee on Arrangements and Entertainment

Fifty-Eighth Annual Session, California Medical Association, Coronado, May 6 to May 9, 1929

San Diego hopes to convince the members of the California Medical Association and their ladies and guests that southern California can make the coming meeting as delightful, from an entertainment standpoint, as did Sacramento in the year preceding, and to that end the following program, which utilizes the afternoons of each day's session for recreation and relaxation, has been arranged.

All who have visited Coronado in years past know that delightful dispenser of old-time hospitality at the Coronado Hotel, Mel S. Wright. His ability to entertain, the good food, comfortable rooms, and attractive building, set in the subtropical flora of this charming spot by the blue Pacific, and deviating from the cold architecture of the ultramodern hotel, combine to render a visit to this paradise of the American continent a long-remembered event.

Outline of Entertainment

MONDAY, MAY 6

The first day, Monday, May 6, 3 to 5 p. m.—Through the kindness of Mrs. John W. Mitchell a reception will be given at the Mitchell Art Gallery in Coronado by the ladies of the San Diego County Medical Society in honor of the wife of the president, Mrs. Wm. F. Kiger, and of the president-elect, Mrs. Morton Gibbons. The art gallery, a building of Moorish architecture, within two blocks of the hotel, contains many gems of the fine arts collected by the late Mr. Mitchell. Fine paintings, sculptures and objets d'art of both ancient and modern times are worth inspection by those interested.

Monday, 8 to 12 p. m.—After dinner there will be an informal dance in the Casino at the hotel. Those who can resist the cadences of a splendid orchestra must be stoics indeed. It is hoped many will attend.

* * *

TUESDAY, MAY 7

Tuesday, May 7, Noon—For the Ladies.—A spice of adventure and a trip to a foreign land lie in the visit planned to Agua Caliente, that charming spot below Tia Juana in Old Mexico. Here has been reared a most splendid hotel, famous for its cuisine and resembling a bit of old Spain. Here also is the Casino, where the more venturesome may experience the thrills of Monte Carlo and toss a coin with Mistress Fortune. Transportation will be provided. Those who desire to go *should register early* at the entertainment desk at the Coronado Hotel. For members who remain at Coronado, motion pictures on subjects of especial interest along educational lines will be shown in the ballroom on Tuesday afternoon.

For the Men.—At 1:30 p. m. there will be a golf tournament on handicap at the San Diego Country Club in Chula Vista. Dr. Edgar C. Lee of San Diego is chairman of the committee. All those interested are requested *to register early* at the entertainment desk. The Chula Vista course has the reputation of being a splendid and sporty links to play. It is recommended that members bring their clubs. Cards to the Coronado and La Jolla Clubs, which offer a diversity of terrain and provide problems to stimulate the golf enthusiast may also be had. Several cups, including that presented by President Kiger, will be awarded for the winners at the president's dinner the same evening. *Register at the desk.* Transportation to all of the clubs will be provided.

Tuesday, May 7, 8 to 12 Midnight.—The pièce de resistance, the president's dinner dance. A formal dinner will be served in the main dining room in honor of the president. We feel sure that this will come up in excellence to those of past occasions. Music and entertainment will be interspersed throughout the evening that there may not be a dull moment. Coronado's reputation for excellence of cuisine, and Mr. Wright's as provider of unique and delightful entertainment are both well known. To those staying at the hotel or Tent City cottages, the dinner charge will be $3.50; to those staying outside, $5.

Please *register at the entertainment desk early* for this occasion.

* * *

WEDNESDAY, MAY 8

Wednesday, May 8, 2 to 3 p. m.—At Rockwell Field, on North Island, the naval flying corps service will put on stunt-flying, and visitors will be shown the new aerial ambulance. This will be followed by a clinic for those interested in aviation medicine. Transportation will be provided from the hotel for doctors and their families. *Early registration is requested.*

Wednesday, May 8, 4 to 10 p. m.—An interfraternity stag will be held at Agua Caliente, below Tia Juana, in old Mexico. Here visitors may eat and frolic for a period of six hours and win or lose their hard-earned coin, note the flashing dark eyes of the señoritas, and review their own Spanish.

The San Diego County Medical Society will provide for the entertainment and dinners, and a good time is assured. It is strongly urged that members use the transportation service which will be provided at the hotel, and not their own cars. Uncle Sam locks the door at 10 p. m., and his rule is inflexible that every car shall be over the border at that hour. Guests who tarry after 6 p. m. must return on the society's special train or remain all night on the Mexican side across the border.

The United States Immigration authorities are very strict about foreign passport regulations. Only United States citizens can cross and recross the lines without a passport. Guests that are not citizens must carry their passport with them if they go to Tia Juana or Agua Caliente.

Transportation will be provided at $1 per person.

Wednesday afternoon, May 8—After luncheon—Ladies.—Sightseeing busses and autos will carry the wives of the members and their guests to points of interest in and about San Diego. No city can provide more lovely vistas of sea and mountains than this growing metropolis of the Southland. There will be motion pictures on the subjects of especial interest to members and their ladies, along educational lines, on Wednesday afternoon.

Wednesday, May 8, 8 p. m.—There will be a bridge party and informal dance in the Casino.

Additional Features.—The United States steamship Relief is expected to be anchored and open for inspection in the harbor of San Diego. There will be a reception aboard for members and their ladies.

Boat trips will be arranged around the harbor to points of interest, and some fine deep-sea fishing will be provided for followers of the rod and reel.

A ladies' golf tournament will be put on if there are a sufficient number of interested guests to warrant it. Ladies are requested to register for this event Monday morning on arriving.

The Golf Committee will arrange for individual matches on Thursday afternoon at the close of the morning session if such are desired.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President
MORTON R. GIBBONS.....President-Elect
EDWARD M. PALLETTE.....Vice-President
EMMA W. POPE.....Secretary

OFFICIAL NOTICES

Special Train to Coronado.—Leaves Third and Townsend streets, San Francisco, 3 p. m. Sunday, May 5. Arrives at San Diego, 8:30 a. m. Monday, May 6.

Special round trip, $22.50. Regular round trip, $31. Pullman rates:

Upper berth	$ 4.50
Lower berth	5.63
Compartment (two)	15.75
Drawing-room (three)	21.00

Table d'hôte dinner, $1.50. Club car and observation.

Return limit of ticket, seven days. Return from San Diego good on any day or train.

Members from counties north or east of San Francisco can connect by train or motor with Special leaving San Francisco at 3 p. m.

Stop will be made at San Jose to pick up members from nearby cities.

This service is contingent on purchase of a minimum of one hundred and twenty-five tickets. Send in your reservation immediately to Mr. C. E. Paine, Southern Pacific agent, in charge, Room 210, 742 Market Street, San Francisco, indicating the number of tickets and the exact sleeping accommodation you wish.

* * *

Coronado Hotels — Accommodations Available.—Hotel del Coronado—American Plan—Six Hundred Guests—Room with bath, $10; room without bath, $9.

Tent City Cottages—American Plan—Three Hundred Guests—Meals at Hotel del Coronado. Room with bath, $7.50; room without bath, $7.

Blue Lantern Inn — Thirty-Five Guests. — Room with bath, American plan, $6.

San Diego Hotels.—U. S. Grant Hotel—European Plan—Three Hundred Rooms—Single room and bath, $4; double room and bath, $6; single room without bath, $2.50; parlor, bedroom and bath, $12.

El Cortez Hotel—European Plan—One Hundred and Fifty Guests—Single room with bath, $4 to $6; double room with bath, $6 to $8; parlor, bedroom and bath, $12 to $18.

San Diego Hotel—European Plan—One Hundred and Ten Rooms—Single room with bath, $2.50 to $4; double room with bath, $4 to $6; parlor suite, $12 to $15.

Make reservations direct with the hotel or communicate with Dr. Frank H. Carter, 1540 Sixth Street, San Diego, chairman of the Committee on Hotel Reservations.

* * *

General Information on Train Connections, Etc.—Four trains for San Diego leave the Santa Fe station at Los Angeles daily: 9:30 a. m.; 3:30 p. m.; 6:30 p. m. and 1 a. m. (with sleeper, which passengers can board any time after 9 p. m.). See Schedule No. 2.

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No Regular Train to San Diego on Sunday Arrives in Time for the First General Session.—The 9:30 a. m. train from Los Angeles reaches San Diego in time for section meetings at 2 p. m. Monday, May 6. The trains from San Francisco and Oakland that connect with this 9:30 train are:

Owl, leaving the Ferry at San Francisco at 6 p. m. Sunday, and the Oakland pier at 6:30 p. m.

Sunset Limited, leaving Third and Townsend Depot at 6:15 p. m.

These trains arrive in Los Angeles at 8:15 a. m. and 8:50 a. m., respectively, in ample time to make connections across town to the San Diego train at the Santa Fe station. (See Schedule No. 1.)

The Lark and Padre both arrive too late. Members who take either of these trains will reach San Diego in time for dinner Monday, and will miss both the first general session and section meetings on that day.

The Daylight Limited reaches Los Angeles at 7:45 p. m. Members who prefer a day ride can take this train, attend a theater in Los Angeles, and take the sleeper to San Diego.

All members who wish to be present at the first general meeting must plan to arrive in San Diego on Sunday or early Monday morning. This can only be done by automobile; by train, leaving San Francisco a day early (see train schedule); by Steamship Yale that leaves San Francisco, Pier 7, 4 p. m., Saturday, and is due in San Diego on Sunday evening, 8 p. m., or by air service to Los Angeles on Sunday, followed by an afternoon train to San Diego or by the *Special* leaving San Francisco on Sunday at 3 p. m.

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SOUTHERN PACIFIC TRAIN SCHEDULE TO LOS ANGELES

Schedule No. 1

Sunset Limited

Leaves San Francisco (Third and Townsend)	6:15 p. m.
Arrives Los Angeles	8:15 a. m.

Owl

Leaves San Francisco (Ferry Building)	6:00 p. m.
Oakland Pier	6:30 p. m.
Arrives Los Angeles	8:50 a. m.

Lark

Leaves San Francisco (Third and Townsend)	8:00 p. m.
Arrives Los Angeles	9:30 a. m.

Padre

Leaves San Francisco (Ferry Building)	8:20 p. m.
Oakland Pier	8:45 p. m.
Arrives Los Angeles	9:45 a. m.

Daylight Limited

Leaves San Francisco (Third and Townsend)	7:45 a. m.
Arrives Los Angeles	7:45 p. m.

Return Schedule

Sunset Limited

Leaves Los Angeles	6:25 p. m.
Arrives San Francisco	8:15 a. m.

Owl

Leaves Los Angeles	6:00 p. m.
Arrives San Francisco	8:50 a. m.

Lark

Leaves Los Angeles	8:00 p. m.
Arrives San Francisco	9:30 a. m.

Padre

Leaves Los Angeles	7:45 p. m.
Arrives San Francisco	9:30 a. m.

Daylight Limited

Leaves Los Angeles	7:45 a. m.
Arrives San Francisco	7:45 p. m.

SANTA FE TRAIN SERVICE BETWEEN LOS ANGELES AND SAN DIEGO.

Schedule No. 2

Train No. 72

Leaves Los Angeles..... 9:30 a. m.
Arrives San Diego..... 12:45 p. m.

Train No. 74

Leaves Los Angeles..... 3:30 p. m.
Arrives San Diego..... 6:30 p. m.

Train No. 76

Leaves Los Angeles..... 6:30 p. m.
Arrives San Diego..... 10:00 p. m.

Train No. 78

Leaves Los Angeles..... 1:00 a. m.
Arrives San Diego (sleeper)..... 5:30 a. m.

Return Schedule

Train No. 71

Leaves San Diego..... 9:30 a. m.
Arrives Los Angeles..... 12:45 p. m.

Train No. 73

Leaves San Diego..... 2:40 p. m.
Arrives Los Angeles..... 5:40 p. m.

Train No. 75

Leaves San Diego..... 5:55 p. m.
Arrives Los Angeles..... 10:15 p. m.

Train No. 79

Leaves San Diego..... 2:10 a. m.
Arrives Los Angeles (sleeper)..... 7:30 a. m.

Trains 71, 72, 73, and 74 are through trains.
Trains 75 and 76 stop at all flag signals.
All day trains carry parlor cars.
Sleepers may be boarded after 9 p. m., and carry standard and tourist sleeping cars.

SAILINGS OF LOS ANGELES STEAMSHIP COMPANY

Schedule for Coronado Meeting

Leave San Francisco Pier 7, 4 p. m.	Arrive at San Diego Municipal Pier, 8 p. m.
Harvard—Friday, May 3	Harvard—Saturday, May 4
Yale—Saturday, May 4	Yale—Sunday, May 5

Return Schedule

Leave San Diego Municipal Pier, 9 a. m.	Arrive at San Francisco Pier 7, 10 a. m.
Harvard—Thursday, May 9	Harvard—Friday, May 10
Yale—Friday, May 10	Yale—Saturday, May 11

The following round-trip rates will be effective in May:
Inside room with berth, $26.
Outside room with berth, $28.
Outside room with bed and bath, $39.
These rates include meals and carry a seven-day return limit.

SAILINGS OF THE PACIFIC STEAMSHIP COMPANY

Schedule for Coronado Meeting

Admiral Benson

Leaves San Francisco, Saturday, May 4..... 3 p. m.
Arrives at San Diego, Monday, May 6..... 9 p. m.
(Los Angeles harbor from midnight, May 5 to 1 p. m. May 6.)

Return Schedule

Admiral Farragut

Leaves San Diego, Wednesday, May 8..... 12 p. m.
Arrives at San Francisco, Friday, May 10..... 6 a. m.
Round-trip ticket, seven-day limit, meals and berth, $26.

WESTERN AIR EXPRESS

Daily Schedule

Leave Oakland Airport..... 9:10 a. m.
Arrive Los Angeles..... 12 noon

Return Schedule

Leave Los Angeles..... 8:50 a. m.
Arrive Oakland Airport..... 11:50 a. m.

Passengers from San Francisco may take an express bus from Palace Hotel at 8 a. m.
Round trip, $100.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held on February 18 at Highland Hospital, being a clinical evening with a program consisting chiefly of demonstrations of interesting cases from the wards of Highland Hospital. Doctor Holcomb reported a giant cell sarcoma of the ulna, which had been operated upon with partial removal a number of months before entry to the hospital. Doctor Holcomb showed the patient after a complete removal of the mass, including a portion of the ulna, pointing out the patient's ability to perform all elbow motions. Drs. Dorothy Allen and Lucille Elliot reported two cases of diabetes mellitus in which syphilis was an outstanding clinical finding. The problems of the etiologic importance of lues in diabetes was discussed at some length by Doctor Templeton. Doctor Cary presented two cases of pathologic fracture of the femur due to malignant tumors—one a carcinoma, the other a sarcoma. Dr. Roy Nelson discussed the problem of frontal sinusitis, and the scientific program of the evening was closed with a discussion of the recent work at the Mayo Clinic on Berger's disease, by Charles L. McVey, who said that good results were obtained in treatment of early cases by foreign protein therapy.

GERTRUDE MOORE, *Secretary.*

CONTRA COSTA COUNTY

The February meeting of the Contra Costa Medical Association was held at the Peralta Hospital, Oakland, on February 26, and the following articles were read and very interestingly discussed:

"Differential Diagnosis of Gastric and Duodenal Ulcer in Relation to Angina Pectoris"—C. A. Dukes.

"Duodenal Ulcer"—J. L. Lohse.

"Manifestations of Acute Upper Respiratory Infections in Children"—C. D. Sweet.

"Maxillary Sinuses"—H. Thomas.

"The Importance of Urological Examinations in the Differential Diagnosis of Abdominal Diseases—P. N. Jacobson.

"Injuries to the Intrapatella Fat Pads"—H. H. Hitchcock.

This meeting was well attended, and the discussions proved very interesting and beneficial.

S. N. WEIL, *Secretary.*

FRESNO COUNTY

The March meeting of the Fresno County Medical Society was held at the Hotel Californian, and was preceded by dinner. There were forty members present.

Dr. C. O. Mitchell gave notice that at the next regular meeting a motion would be introduced to bring the section of the constitution relating to ethics into accord with the California Medical Association as well as the American Medical Association.

Dr. Michael Creamer of Los Angeles gave the address of the evening. His subject was "Contraception." He gave a brief review of the history of the efforts which have been made in this country to give instruction where it is needed on the technique of contraception. He also outlined clearly the various methods in use and how they are applied.

J. M. FRAWLEY, *Secretary.*

NAPA COUNTY

The February meeting of the Napa County Medical Society was held in the Ramona Gardens, Napa, President A. K. McGrath presiding. A banquet was held preceding the regular meeting. Those members present were: Doctors Baker, Blodgett, Booth, Coleman, Dawson, Donnelly, Graves, Love, McGrath, Murray, Rogers, Welti, and Wood. Guests were: Dr. W. R. P. Clark of San Francisco and Stanford University, speaker of the evening; Doctors Marquette of Mare Island, and Stone of Eldridge.

The minutes of the preceding meeting were read and approved.

Doctor Welti gave an informal discussion of a lien bill, now before the state legislature, which provides for the settlement for services rendered by hospitals

and doctors to transient patients. Support of the Napa society was urged for the bill.

Moved, seconded, and unanimously carried that the Napa County Medical Society go on record as favoring the lien bill.

Moved, seconded, and carried that the secretary of this society be instructed to write to the secretaries of each county society in the state and advise them that the Napa society had gone on record as unanimously favoring the lien bill; and that the state assemblyman and senator from this district be advised of this action.

Doctor Welti gave a report of the progress of the committee in charge of the work for the tuberculosis hospital proposed for the joint use of Sonoma, Solano, Napa, Lake, and Mendocino counties. A public meeting was held in Napa on February 28 for the discussion and presentation of the proposed plan.

Moved, seconded, and carried that the secretary of this society be instructed to write to the state senator and assemblyman from this district asking their support for the Subsidy Bill now before the state legislature providing for state aid for tuberculous patients in city or county preventoria, and sanitoria, and in city or county convalescent homes.

Doctor Murray presented an invitation from the Solano county society asking the members of the Napa society to be their guests at a banquet and meeting in Vallejo on March 13. Unanimously voted that this cordial invitation be accepted and that this joint meeting take the place of the regular March meeting of this society.

Dr. W. R. P. Clark, professor of medicine at Stanford Medical School, was then introduced and gave an illustrated talk on "Tuberculosis As a Community Problem." The talk was very interesting and in direct line with the ideas on the proposed hospital now under consideration. An informal discussion followed.

There being no further business the meeting adjourned on motion.

CHARLES A. GRAVES, *Secretary.*

SACRAMENTO COUNTY

The regular meeting of the Sacramento Society for Medical Improvement met at the Hotel Senator on the evening of February 19, and was called to order by Doctor Pope at 8:35 p. m.

The minutes of the previous meeting were read and approved.

Two cases were reported.

The first was by Doctor McKee. This was the case of an adult male who had had a laryngectomy for carcinoma. In 1926 the patient had influenza. He recovered, but had some hoarseness and was treated for the same. There were no other symptoms. In June 1927 a biopsy of tissue from the throat was done, and this was found to be malignant. He then went to Philadelphia, where a laryngectomy was performed. His postoperative stay in the hospital was two months. The patient then demonstrated talking with a patented voice box. He, however, is one of the few who can whisper following this type of operation.

The second case was reported by Dr. Joseph Sampson.

This was a case of primary peritonitis due to a streptococcus. On February 2, 1929, the patient, who was a female eight years of age, complained of a sudden abdominal pain. A diagnosis of appendicitis was made. She was admitted to the hospital. The findings were as follows: The abdomen was tender, but not rigid. There was no distention, but slight dullness at both bases. The tonsils were red and the pharynx was hyperemic. The tongue showed few papillae. Blood: hemoglobin, 82 per cent; whites, 28,600, with 81 per cent polymorphonuclears. Temperature, 104. The second day the temperature dropped, but the abdomen was more tender. The third day showed the abdomen more distended. The lungs showed a slight increase in pitch at the lower right base with a pleural rub. The next day the patient vomited, was markedly distended, markedly prostrated, and soon died. An autopsy showed a slight dilatation of the stomach. The omentum was adherent to the intestines. A greenish exudate was present in the abdominal cavity, and a culture of this showed a short chain streptococcus. There was no marked pneumonia, but exudate in the pleural cavities. These cases are exceptionally rare.

The paper of the evening, "Precordial Pain—Clinical Types and Significance," was given by Dr. E. Kilgore of San Francisco.

The cause of a precordial pain, as emphasized by Doctor Kilgore, is not definitely known, but in recent years there have been numerous theories advocated, the two most plausible theories being, first, due to an irritation in the aorta, and, second, as Doctor McKenzie states, that it is an expression of exhaustion of the heart muscle. The anginal pain is a symptom of something wrong in the vegetative arc, and angina pectoris or pain in the region of the heart is the one that is dangerous. There are, however, two types of anginal pain, the true and the pseudo. The true is found in the male in middle age and, usually, a business man; the pseudo in a younger person, usually the female and a housewife.

In the differential diagnosis the family history may furnish some clue in regard to inherited traits. The past history is not so good except in cases where syphilis may play a rôle.

The types of pain may be grouped:

1. Lancinating.—Here the pain is like a knife thrust. It is more of a darting pain and often, when severe, it is similar to a red-hot iron. The onset is instantaneous with severity. It may last only a few seconds. It is not common in severe grades, and is usually of minor importance.

2. Compression Pain.—Here we have a condition where the patient feels as if the chest were squeezed in a vice. Another symptom here is the feeling of a balloon full of gas.

3. Aching Pains.—These are usually dull and increase in severity as the patient exerts himself further.

In discussing these Doctor Kilgore emphasized the fact that the first is usually found in a pseudo-angina, while the latter two are usually found in true angina. In true angina the topography is more often not over the heart. The commonest is substernal in origin In pseudo-angina it is usually over the heart. Radiation likewise does not help. Pseudo does not radiate. In true angina, one should look in unusual places. It may radiate to the right arm or both arms. Neck and jaws or shoulder blades are other places of radiation.

In the treatment of this condition the history is of utmost importance, and the important point to find out is what causes the condition and when it comes. In the true angina the pain usually comes during the act, such as eating, drinking, excitement, or work, and if anything can definitely be linked up with the pain, it is usually not pseudo. The mental state is important, for usually the worse the attack the less worry we find. For immediate relief nitroglycerin is of importance. Where this does not give relief we are usually dealing with a pseudo-anginal attack.

Coronary thrombosis gives a pain which is clinically similar to angina. The pulse is thready and the patient appears to be in shock, but later we get a mild fever and leukocytoses.

The paper was ably discussed by Doctors Gundrum, Johnson, Reardan, Lindsay, Scatena, and Bramhall.

A report of the board of directors was read. The board recommended that some of the money be transferred from the checking account of the society to that of a savings account.

It was moved and seconded that the action of the board of directors be approved and carried out. Motion carried.

Doctor Thom reported for the banquet committee. His report was that the annual banquet was to be held at the Country Club on the evening of March 16. The price was to be $10 per plate and that guests

would be welcome, but the guests were to be limited to the medical profession.

There being no further business the meeting adjourned. H. SCHLUTER, *Secretary.*

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SAN BERNARDINO COUNTY

The meeting of the San Bernardino County Medical Society was called to order by the president at 8:15 o'clock, March 5.

Doctors T. I. Zirkle and Oram Cutler were elected to membership.

The question of legal advice being made available for the council was brought up. A discussion, not reaching definite conclusions, the matter was laid upon the table for the present.

Attention was called to the meeting of the Southern California Medical Association at Riverside on April 5 and 6.

Attention was called to the course of lectures given by Doctor Engleback at the Hollywood Hospital beginning March 11.

The following program was then entered upon:

Presentation of Case—Nephrectomy for Stone with Failure to Remove Stones, by Dr. I. L. Finkelberg, San Bernardino. Presentation of two cases of pyelostomy and nephrostomy, by Dr. Walter Pritchard, Colton. Accidental Ligation of Ureter Requiring Subsequent Nephrectomy. Presentation of case with résumé of affiliated data, by Dr. E. J. Eytinge, Redlands.

Each of these clinical cases was the object of general discussion, which was opened in turn, by Dr. B. W. Wright, chief urologist Santa Fe Hospital, Los Angeles.

Dr. W. B. Dakin of Los Angeles then read a paper on "The Diagnosis and Treatment of Gonorrhea."

There were about thirty present.

The meeting adjourned at 10:30 o'clock.

E. J. EYTINGE, *Secretary.*

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SAN DIEGO COUNTY

At the regular monthly meeting of the Scripps Memorial Hospital staff, February 18, the monthly report, with a discussion of interesting cases, was given by the secretary, Dr. William C. Diefenbach. Following, Dr. Truman A. Parker presented a case of central lobar pneumonia treated by vaccine. Progress of the case, before and after therapy, was checked by x-ray examination. Doctor Parker's able presentation was followed by lively discussion.

The evening of February 15 the San Diego County Medical Society was given a valuable program by representatives of the American College of Surgeons. This group comprised: Dr. Burton J. Lee of New York City, Dr. C. L. Scudder of Boston, Dr. A. C. Scott of Temple, Texas, and Drs. M. T. MacEachern and B. C. Crowell, executives of the college.

Doctor Scudder spoke of the efforts of the American College of Surgeons to standardize the treatment of fractures. Doctor Lee reviewed the standardized methods of therapy, both surgery and radiation in the treatment of neoplasms. Doctor Scott convincingly presented the indications and technique for the actual cautery in surgery. Doctor Crowell spoke briefly of the progress and objectives of the Scientific Bureau of the college, of which he is director. The profession of San Diego showed their interest and appreciation by an unusually large attendance.

County Hospital Notes.—There is at present under way the organization of a cancer board connected with the County Hospital for the study and determination of the outline of treatment for each individual case.

The hospital has just completed the installation of the most modern deep therapy equipment in connection with a general physiotherapy equipment, second to none in the state, thus making an opportune time to organize the cancer board. The hospital owns its own radium.

At the last meeting of the staff Doctor Sanders of Des Moines, Iowa, gave an interesting talk on the statistics of cancer, particularly as to its racial distribution. Along this line he has proven that the Indians as well as our Mexican neighbors, are less susceptible to cancer than the pure Caucasian races, for which at present the doctor advances no explanation. The speaker also expressed the opinion that treatment by surgery had been a disappointment in cancer, especially cancer of the female pelvis and breast.

At the same staff meeting three cases of liver abscess were reported by members of the staff: one of amebic origin, and the others secondary to appendicitis.

A number of our surgeons attended the sectional conference of the American College of Surgeons in Los Angeles during the latter part of February.

ROBERT POLLOCK.

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SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at 8:30 o'clock, March 7, in the hall of the Medico-Dental Club, 242 North Sutter Street, Stockton.

The meeting was called to order at 8:30 o'clock, Dr. C. V. Thompson, president, presiding. Thirty-one were in attendance. Those present were: Doctors N. P. Barbour, J. W. Barnes, E. L. Blackmun, C. A. Broaddus, H. S. Chapman, F. J. Conzelmann, J. T. Davison, Linwood Dozier, C. F. English, F. T. Foard, P. B. Gallegos, Minerva Goodman, L. M. Haight, Samuel Hanson, G. G. Hawkins, C. D. Holliger, H. E. Kaplan, B. M. Krout, C. H. LaBerge, R. V. Looser, R. T. McGurk, F. S. Marnell, J. E. Nelson, D. R. Powell, G. H. Rohrbacher, George H. Sanderson, F. B. Sheldon, J. J. Sippy, C. V. Thompson, A. L. Van Meter, and Doctors W. Scott Polland and William Dock, guests and speakers of the evening.

The minutes of the previous meeting were read and approved.

The committee on admissions recommended Dr. R. L. Owens of Lodi for membership. In accordance with the constitution, the chair declared Doctor Owens duly elected a member of the society. The application for membership of Dr. K. W. Hidy of Manteca was read and referred to the committee on admissions. Doctor Chapman announced a meeting of the Northern District Medical Society at Chico.

The society had invited Dr. Arthur L. Bloomfield as speaker of the evening, but illness prevented him from attending and he sent his colleagues and coworkers, Doctors W. Scott Polland and William Dock. Doctor Polland read a paper, "The Diagnostic Value of Studies of Gastric Secretion." These studies are now carried on by Doctors Bloomfield and Polland at Stanford University School of Medicine. Doctor Dock led the discussion.

A brief summary of Doctor Polland's paper is as follows:

In order that information be obtained in the study of gastric function it is necessary to use an accurately standardized procedure. Doctors Bloomfield and Polland devised a method by which the two essential items of information desired, namely, the acidity of the pure juice and the volume of gastric juice, may be obtained.

The patient, under basal conditions, fasts for at least twelve hours. A duodenal tube is passed for a sufficient distance to allow its tip to reach the most dependent part of the stomach. The fasting contents are withdrawn and collected over two or three ten-minute periods. Histamin (0.1 milligram per ten kilos of body weight) is injected hypodermically to stimulate gastric secretion. Aspiration is then continued over as many ten-minute periods as desired. Throughout the procedure the subject is urged not to swallow saliva.

A certain amount of practice is necessary before the procedure can be carried out satisfactorily, but they have found that repeated tests of the same person yield almost identical results. The main points of importance in this method of testing gastric function are the uniformity of the conditions under which the

procedure is carried out: the strength of the stimulus used, which unmasks anacidities; and the estimation of secretory volume, which is of great diagnostic importance.

By this procedure Bloomfield and Polland have found that all people with gastric, and more especially duodenal ulcer, have high acid and large secretory volumes; on the other hand, by no means do all people with high acid and large volumes have ulcer. Distinctly low volumes and low acid are very strong presumptive evidence against the presence of ulcer. Conversely, acid and volume above average have not, in their experience, occurred in the presence of cancer of the stomach.

By using this method they have been able in individual cases to demonstrate improvement in gastric function in conditions such as sprue, which have undergone liver therapy; differentiate between ulcer and cancer as a cause of pyloric obstruction, and make the diagnosis of ulcer when the clinical and radiological opinion was cancer, or to make the diagnosis of a benign lesion in cases clinically and radiologically regarded as carcinoma.

Several questions were asked by Doctors Barbour, Barnes, Dozier, Chapman, Sheldon, McGurk, English, and Sanderson, which Doctor Dock answered in a very practical way. Doctor Dock emphasized the importance of taking a good history of the patient's ailment to differentiate between diseases arising outside of the stomach and real stomach conditions.

The x-ray may show the location of the lesion, the functional test, and the nature of the disease.

There are certain characteristic symptoms of gastrointestinal diseases, but none are pathognomonic.

The chair expressed appreciation and thanks on behalf of the society to the speakers of the evening.

There being no further business the chair declared the meeting adjourned at 9:45 o'clock.

Fred J. Conzelmann, *Secretary.*

SISKIYOU COUNTY

The first meeting of the Siskiyou County Medical Society of the year 1929 was held in Yreka, March 10.

Dr. C. G. Reynolds of Yreka was appointed delegate to the state meeting and Doctor Robert Heaney was appointed alternate.

At this meeting Dr. W. E. Tebbe of Weed was elected vice-president of the society.

Three new applications for membership were received and read. Dr. Paul Baron of Dorris was voted into the society, and the applications of Dr. J. I. Porter of Hilt and Dr. A. A. De Lorimier of Weed were read and referred to the committee on admissions.

The next meeting is scheduled for April 14, but the place of meeting is not decided upon.

Ruth Carpenter Hart, *Secretary.*

STANISLAUS COUNTY

The March meeting of the Stanislaus County Medical Society was held at the Hotel Hughson, March 8. Following the usual 6:30 o'clock dinner, the meeting was called to order by the president, Doctor F. J. Peter.

The minutes of the last meeting were read and approved.

Doctor DeLappe reported that no action had been taken by the Attorney-General regarding the blanks used by the school physicians.

Mr. Williams of the Medical Protective Company appeared before the society and read a letter from his home office concerning Attorney Brown. The secretary was instructed to send a letter of thanks to the Medical Protective Company for their attention to the matter of Attorney Brown, stating that the society withdrew their objection to his further employment and thanking Mr. Williams for his courtesy in appearing before the society.

Dr. LeRoy Brooks of San Francisco read a paper on "Ptosis of the Cecum and the Ascending Colon." He discussed the mechanics, types, symptomatology and treatment, and illustrated, by lantern slide, an operation for the correction of the ptosis which had given him good results. Following this he demonstrated his apparatus for blood transfusion with a few remarks on the indications and benefits of blood transfusion.

The society expressed their appreciation to Doctor Brooks for his excellent paper.

Those present were: Doctors Peter, Hiatt, Hagedorn, Maxwell, Surryhne, W. Smith, Finney, McPheeters, Gould, Mottram, Morgan, Hartman, Collins, DeLappe Mr. Williams, and Dr. LeRoy Brooks, guest and speaker of the evening.

There was no further business and the meeting was adjourned.

R. Stewart Hiatt, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Alameda County—John R. Vasko.

Contra Costa County—J. F. Feldman.

Fresno County—John Beals Moore and C. A. Wells.

Lassen Plumas County—Numa P. Dunne and W. M. Edwards.

Los Angeles County—Creed F. Cherry, Joseph Gamewell Evans, Morrill L. Ilsley, John L. McDaniel, Lillian S. Mitchell, Seeley G. Mudd, Carl W. Paulson, Vernon P. Thompson, and Donald G. Tollefson.

Marin County—M. W. Harris.

Monterey County—James H. Bradfield and E. Vieira.

Riverside County—Arthur W. Miller, Harry L. Ratliff, and Alex S. Waiss.

San Bernardino County—Elizabeth J. Hiscox and Harold M. Walton.

San Francisco County—John C. Newton, David D. Charmak, Harold M. Gilfillan, Frank M. Rice, and Blake C. Wilbur.

San Mateo County—William F. Knorp.

Santa Barbara County—Robert A. Hare and Roscoe C. Main.

Shasta County—Chester D. Sewall.

Sonoma County—Ralph V. Harr, Leighton Ray, and Louis O. Wallace.

Stanislaus County—Donald L. Robertson.

Tuolumne County—Valentine C. Holmer and John E. McGuinness.

Ventura County—J. W. Bardill and C. A. Smolt.

Yolo-Colusa Counties—Walter Blaine Felger, Jens W. Larsen, and R. W. McBride.

Transferred Members

Mary W. Harris, from Butte to Marin County.

Dave F. Dozier, from Siskiyou to Sacramento County.

Leopold H. Fraser, from Alameda to Contra Costa County.

Deaths

Berry, Stanley Francis. Died at Oakland, February 26, 1929. He was a graduate of the University of Vermont College of Medicine, Burlington, 1914. Licensed in California, 1917. Doctor Berry was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Buckingham, Henry Proctor. Died at San Francisco, March 11, 1929. He was a graduate of the University of Michigan Medical School, Ann Arbor, 1923. Licensed in California, 1923. Doctor Buckingham was a member of the San Francisco County Medical Society, a member of the California Medical Association, and a member of the American Medical Association.

Maine, Alva Frank. Died at Oakland, February 25, 1929. He was a graduate of the University of Louisville School of Medicine, Kentucky, 1901. Licensed in California, 1901. Doctor Maine was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Martin, Hugh Ralph. Died at Riverside, January 22, 1929. He was a graduate of the University of Illinois College of Medicine, Chicago, 1901. Licensed in

California, 1901. Doctor Martin was a member of the Riverside County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

McGee, Harry Stowe. Died at Los Angeles, February, 1929. He was a graduate of the University of Michigan Medical School, Ann Arbor, 1902. Licensed in California, 1922. Doctor McGee was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Morris, John Knox. Died at Modesto, March 9, He was a graduate of the Hospital College of Medicine, Louisville, Kentucky, 1891. Licensed in California, 1896. Doctor Morris was a member of the Stanislaus County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Werner, Carl Otto Eduard. Died at San Francisco, February 21, 1929. He was a graduate of the University of Jena, Germany, 1899. Licensed in California, 1921. Doctor Werner was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARIES

An Appreciation

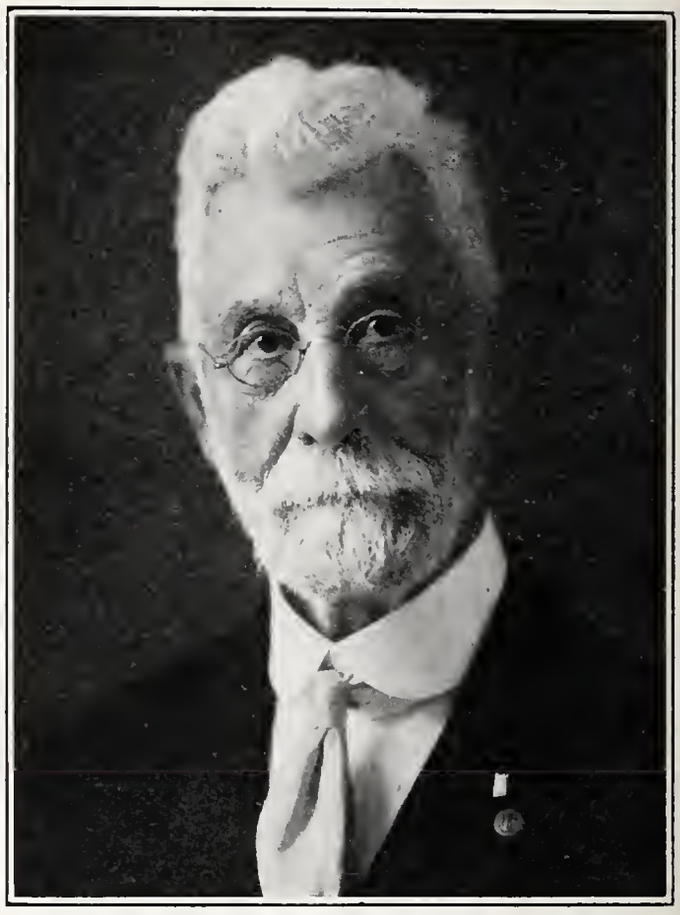
By the death of Dr. Thomas L. Magee (at his home in San Diego in the early morning of January 1) the San Diego County Medical Society has lost its only surviving charter member, and the profession of the state lost probably its oldest licensed practitioner of medicine. Doctor Magee came of Revolutionary stock, his great grandfather having crossed the Delaware with Washington, before the battle of Trenton. Born in Ohio on October 14, 1836, he had attained on January 1, 1929, the ripe age of ninety-two years. Most of his boyhood was spent in Illinois, in a log cabin with home-made furniture and all the surroundings of real pioneer life. His medical training was received at the Rush Medical School in Chicago and at the medical department of the University of Tennessee.

On his enlistment in the Federal forces in the Civil War about 1862 he was the youngest surgeon in the Army. By virtue of great ability and hard work he left the Medical Corps with the rank of major and, through the personal recommendation, based on his splendid record, of General Phil Sheridan to the Governor of Illinois, he was one of five surgeons out of six hundred and eighty-seven enlisted from that state who received the rank "G," the highest award of merit granted in the medical service.

After the defeat and retirement of the Federal forces at the battle of Chickamauga, Doctor Magee with a number of other surgeons was left behind to attend to the wounded of both sides. It was then customary, on the arrival of a sufficient force of Confederate surgeons, to return the Federal surgeons to their own lines. Breaking away from all precedents, the Confederates, for the first time in the Civil War, made prisoners of Federal surgeons left on the field with their hospital assistants. The surgeons were sent to Libby prison in Richmond, where they were held for about three months until they were exchanged for Confederate officers of equal rank, there being no surgeons held at that time by the Federal forces.

It was the good fortune of the present writer in later years to know intimately three of the surgeons taken at Chickamauga, Dr. Magee, Dr. George Ashmun of Akron, Ohio, and Dr. David Benedict of Norwalk, Ohio, all outstanding men in their profession; and it was also his good fortune about thirty years ago to reintroduce Doctor Benedict to Doctor Magee, and to sit for three hours entranced with the recital of the tragedy and comedy of that harrowing experience.

Doctor Magee came to Riverside in 1883 and, in 1885, removed to San Diego, where he resided until his death. He was a charter member, and a very useful participant in the rather stormy early days of the San Diego County Medical Society. He was early elected its secretary and served faithfully in that capacity until drafted for president. He later accepted the secretaryship and retained it for several of the formative years of the society. He was always noted for his strict adherence to the ethical code. With the possible exception of the late Dr. T. A. Davis, no other member ever did so much to foster amity and good will among the members. This went far to make true his frequent remark on closing the minutes of our meetings, "The society adjourned, peace and harmony prevailing."



Thomas L. Magee
1836-1929

Very early in his residence in San Diego he was made a member of the local United States Pension Board and a surgeon of the Santa Fe Railroad, both of which positions he retained until a few months before his death. He was secretary of the Pension Board and made out all the reports and carried on all the correspondence at least into his ninety-second year. He always kept in mental contact with medical progress and still did a small amount of medical work, though, with slowly failing strength, he did not care to carry on extensively. There were many old patients who would have been glad to consult him if he had allowed it. Less than ten years ago he was called out at night to do an appendectomy, and made a record for the quick recovery of his patient.

Doctor Magee served four terms as city health officer, and his administration was noted as having been carried on without fear or favor. He was also the surgeon of the old Ninth Regiment, California National Guard.

In 1866 Doctor Magee married Sarah Elizabeth Sanford, who died in 1905. Three sons survived her—Dr. Chester L. Magee of Alhambra, California, who followed in his father's footsteps as a surgeon of the Santa Fe Railroad and a surgeon during the late war; E. De Los Magee, a prominent lawyer in San Francisco; and Dr. Claude Magee, who died in Los Angeles in 1923, after several years of successful practice

and service in the late war from which he came out with a major's commission

Doctor Magee was made a Mason in his early manhood and retained his affiliation with his Illinois lodge throughout his life. He also became a Baptist in early years, and for most of his residence in San Diego he was a deacon of the First Baptist Church. He laid the cornerstone of the old Baptist Church in 1887, and just twenty-five years later he again laid the same cornerstone in the present great edifice which replaced the old one.

Doctor Magee was always an active worker in civic affairs who could be depended on to do his bit for the community. The present writer visited him on his ninety-second birthday and, though he showed some impairment of vitality, he was impressed by the strength remaining and by his mental poise, which showed no sign of weakening. He used to give as a rule for longevity, "Eat what is set before you, do a full day's work, sleep the night through, and don't worry."

Doctor Magee's death leaves a great void which is felt by a large number of us who were his admiring friends.

FRED BAKER, M. D.

John Knox Morris

1861-1929

John Knox Morris was born April 29, 1861, at Lawrenceburg, Indiana. His father having died while he was yet young he was early in life thrown on his own resources. He was given an appointment as a cadet in the United States Naval Academy at Annapolis, where he served for three years, when he entered the Hospital College of Medicine at Louisville, Kentucky, from which he graduated in 1891. He then entered Jefferson Medical College at Philadelphia, and graduated in 1894. He immediately thereafter located in Louisville, Kentucky, and, after spending some time in the clinics of Chicago and Philadelphia, began specializing on the eye, ear, nose, and throat. He remained in Louisville for twelve years, and during most of that time was professor of physiology and associate professor of ophthalmology and otolaryngology in the Louisville Medical College. In 1906, his health having broken, he came to California and, in order to get the benefit of outdoor life, he followed a country practice until his health was restored. He then, in 1918, came to Modesto and reëntered upon the practice of his specialty. Here his excellent work became well known to his fellow practitioners.

He was married at Louisville, Kentucky, to Mary Quarrier Fullerton. She died in 1899. To them was born one child, Dr. John Knox Morris, Jr., who joined his father in his chosen profession in Modesto in June, 1928. Doctor Morris was married a second time, in 1906, to Maude Graham, who, with his son, survives him.

Doctor Morris was a retiring, quiet gentleman who devoted all of his spare time to study. He not only kept up to date in his profession, but was well informed on all public questions.

NEVADA STATE MEDICAL ASSOCIATION

R. R. CRAIG.....President
W. A. SHAW.....President-Elect
H. A. PARADIS.....First Vice-President
R. P. ROANTREE.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

The Washoe County Medical Society met at its regular place, the Sciots Club of Reno, on the evening of March 12, with Dr. J. L. Robinson, president, presiding. There were no committee reports, neither report of cases. In lieu of the same, the president related some of his observations gathered while at Los Angeles at the Nevada-California meeting of the American College of Surgeons. The president's talk was mostly confined to what he had observed with relation to the management of the Los Angeles County Hospital, especially the manner in which patients were roomed as "ward" patients which were not wards in the usual sense. Groups of patients were domiciled in clean, wholesome rooms at no cost, part-pay cost, and full cost. Doctor Robinson explained further the plan on which such patients were admitted for treatment as being adjusted to meet with the patient's ability to pay, except in those patients whose finances exceeded a certain sum. If possessed of a specified amount of property they could not be considered as subjects of charitable treatment and were referred to regular full-pay hospitals. Group nursing, by nurses serving on eight-hour terms of duty, made it possible to give special care to groups of patients at a greatly reduced cost from the old-time and expensive manner of employing individual nurses for single patients. This method, Doctor Robinson said must in time become the vogue in all standard hospitals. This plan would not only put the nurse on full pay, but would greatly lessen the cost to the patient.

The essayist of the evening was Doctor Dinsmore, head of the Nevada State Food and Drug Laboratory. The paper was on the pollution of the Truckee River by the paper mill at Floriston, California.

The paper was technical, yet very instructive and interesting, showing how in the past thirty years this subject of river pollution by the Crown Willamette Paper Company had raged from California to Nevada and then to Washington, causing endless meetings, proposals, and counter proposals. At one time the Nevada legislature appropriated $10,000 toward investigations, but to no purpose. However, Doctor Dinsmore said that he believed the end of the pollution was in sight, inasmuch as the company were installing a new type of machinery that would so modify the nitrous sulphite waters that, when turned back into the river, there would be no chemical fouling, which has been such a nuisance in the past.

It had been experimentally shown that fish eggs planted above Floriston were almost 100 per cent viable, but when planted below the mill the eggs nearly all were killed by the chemically impregnated water; that the sugars of the wood pulp produced a heavy growth of algae, which grew in the river bed and found its way down to the city of Reno, becoming at times a nuisance to the water mains of the town. A point of interest brought out was that experiments all over the world had been made with an eye to converting much of the mill refuse in paper manufacturing into some useful by-product, but such experiments had been financial failures. However, it seemed now that industrial chemists had found a means of doing this very thing, which would serve the double purpose of ensuring a profit from the residue and neutralizing the chemical effect of the waste. The society voted Doctor Dinsmore a vote of thanks for the able exposition of the distressing problems, and all followers of Izaak Walton heartily ventured the hope that the Truckee River would yet assume its former great reputation of being the finest trout stream in the United States.

The doctor's paper substantially concluded the proceedings of the evening, and the society stood adjourned to meet in its April session as the guests of Dr. S. K. Morrison of Reno.

THOMAS W. BATH, *Secretary.*

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the Convention Room at the Newhouse Hotel, Salt Lake City, on February 11.

The meeting was called to order at 8:05 p. m. by President C. M. Benedict. Fifty-three members and seven visitors were present.

The minutes of the previous meeting were read and accepted without correction.

John Z. Brown presented a specimen of a popliteal thrombosis, and gave a brief résumé of the clinical history of the case.

Ralph Tandowsky gave an illustrated talk on "The Clinical Significance of Electrocardiography." The subject was discussed by W. R. Tyndale and Clarence Snow.

G. G. Richards gave an illustrated talk on "The Medical Management of Gastric Ulcer," which was discussed by O. J. LaBarge, J. P. Kerby, F. B. Bailey, and A. C. Callister.

The report on the Community Clinic, C. M. Benedict, chairman, was postponed for two weeks.

A. C. Callister, chairman of the Public Health and Legislation Committee, reported that at a joint meeting between this committee and a similar committee of the Utah State Medical Association a circular letter urging the defeat of Senate Bill No. 5, Section 3061, was proposed, to be sent to the members of the Utah legislature. This committee reported favorably upon the Newton Bill, at the present time before the United States legislature. M. M. Critchlow moved that the report be accepted. Motion was seconded. Clarence Snow amended this motion to strike out reference to the Newton Bill. Motion carried.

Clarence Snow moved to reject the report upon the Newton Bill. The question was discussed by J. Z. Brown, A. C. Callister, J. P. Kerby, E. P. Oldham, W. F. Beer, and O. J. LaBarge. Seconded and carried by a rising vote of 27 ayes, 11 noes.

A communication from the Medical Finance Association was read regarding its method of operation, and wishing for the approval of this society. John Z. Brown moved that it be the sense of the society that the Medical Finance Association take up its organization plan with the individual members.

W. M. Nebeker, D. A. Harvey, and J. Mercer Anderson were elected to membership following a report of approval by the board of censors, the vote being 27 ayes, 0 noes.

Announcement of a dance to be given February 15 by the Medical Auxiliary of the Utah State Medical Association was made by Mrs. C. L. Sandberg.

The meeting was adjourned at 10:25 p. m.

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The regular meeting of the Salt Lake County Medical Society was held in the Convention Room at the Newhouse Hotel, Salt Lake City, February 25.

The meeting was called to order at 8:15 p. m. by President C. M. Benedict. Twenty-seven members and five visitors were present.

The minutes of the previous meeting were read, and accepted after the following correction had been made: To change "Auxiliary of the Utah State Medical Association," paragraph eleven, to read "Auxiliary of the Salt Lake County Medical Society."

F. F. Hatch gave an interesting talk on "The Treatment of Tannic Acid Burns," and presented a case so treated. This paper was discussed by William Rich, E. F. Root, Clark Young, and A. Cyril Callister.

Foster Curtis gave a short talk on "Feeble-Mindedness," which paper was discussed by B. E. Bonar, William F. Beer, G. H. Pace, J. Z. Brown, S. C. Baldwin, and A. Cyril Callister.

C. M. Benedict, reporting as chairman of the Community Clinic Committee for last year, read two letters from the directors of the Community Clinic requesting him to delay the report of his committee until further investigation could be completed by the directors. C. M. Benedict asked the pleasure of the society regarding these letters. E. F. Root moved that the society comply with the request of the Community Clinic directors. This question was discussed by Doctors J. Z. Brown and A. Cyril Callister. Motion carried. C. M. Benedict asked about the appointment of new physicians to serve on the Community Clinic, and it seemed to be the sense of opinion of the society that the men now on duty should be allowed to continue their services until further notice.

C. M. Benedict announced that on Monday, March 25 the Salt Lake County Medical Society would hold a dinner meeting at the Bigelow Hotel in Ogden in conjunction with the Weber County Medical Society.

The meeting was adjourned at 9:50 p. m.

BARNET E. BONAR, *Secretary.*

WEBER COUNTY

The meeting of the Weber County Medical Society was held February 21 at the Hotel Bigelow, President A. H. Aland presiding. Dinner preceded the program.

Dr. E. P. Mills made a motion that the society go on record as favoring the establishment of a home in Utah for the feeble-minded. Seconded by Dr. W. M. McKay, passed unanimously, a letter favoring this bill to be sent to the Committee on Judiciary of the Utah Senate. Dr. Ezra Rich made a motion that the society also go on record as being opposed to Senate Bill No. 5, introduced by Senator Candland, the purpose of this bill being to reduce the personnel of the Industrial Commission of the State of Utah from three members, as it exists at the present time, to one member on and after April 1, 1931. Seconded by Dr. R. L. Draper, the motion passed unanimously.

Dr. Frank K. Bartlett suggested that the officers of the Weber County Medical Society get in touch with the Mountain State Telephone Company, and make an effort to have a satisfactory classification of the physicians and surgeons in the telephone directory. He moved that the society favor a plan for classification under the Weber County Medical Society. This motion was seconded and passed.

The program for the evening was very interesting. Dr. E. P. Mills gave an excellent report of a series of one thousand "Obstetrical Cases." Doctor Mills' paper showed that he has been keeping careful records of these cases. He also gave the percentage of the various complications of pregnancy; this paper was discussed by Dr. Vernon L. Ward. Dr. Elmer Berrett gave a paper on "Allergy," and showed numerous charts of the flora of this locality that are responsible for hay fever; this paper was discussed by Doctors Fister, Draper, and McKay.

The next meeting of the Weber County Medical Society is to be held March 25, at which time the Salt Lake County Medical Society is to be at the meeting and furnish the entertainment.

Meeting adjourned.

GEORGE M. FISTER, *Secretary.*

NEWS

The regular meeting of Holy Cross Hospital Clinical Association was held the night of February 18, at the hospital.

Dr. Ralph M. Tandowsky gave a paper on the "Indications for Electrocardiographic Tracings," being a consideration of the conditions and symptoms in which electrocardiograms may prove of specific value.

Dr. J. J. Galligan followed with a report and discussion of "Carcinoma of the Cervix."

Dr. C. J. Albaugh reported a case of diaphragmatic hernia of the congenital type.

Dr. T. A. Flood exhibited pathological specimens and discussed same from the laboratory and diagnostic viewpoint.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Readers' Forum; California State Board of Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Summer Courses for Graduates in Medicine will Be Offered in the University of California Medical School, San Francisco, June 3 to June 29.—Most of the clinical branches will be covered in the morning and afternoon courses, including general medicine, surgery, pediatrics, circulatory diseases, gastro-intestinal diseases, x-ray, orthopedics, urology, eye, nose, and throat, neuropsychiatry, pathology, laboratory diagnosis.

In addition to these regular courses there will be daily midday clinics and on several evenings a week, lectures on general medical topics. These will be open to the medical public.

Announcement of courses will be mailed on request. As many of the courses will have limited enrollment, those who wish to register should make early arrangements.

Please address the Dean's office, University of California Medical School, Parnassus and Third Avenues, San Francisco.

Graduate Summer Course, Stanford University Medical School.—The Stanford University Medical School offers a special summer course of lectures and demonstrations for graduates of medicine to be given between Monday, June 17, and Saturday, June 29.

A detailed program will be sent on request to anyone interested on application to the Dean, Stanford University Medical School, 2398 Sacramento Street, San Francisco.

Lane Medical Lectures.—The twenty-second course of Lane Medical Lectures will be delivered by Walther Straub, M. D., Ph. D., professor of pharmacology,. University of Munich, Munich, on the evenings of April 15, 16, 17, 18, and 19, 1929 at 8:15 o'clock in Lane Hall, Stanford University Medical School, San Francisco.

The titles of the lectures to be given by Dr. Walther Straub are as follows:

April 15—Recent Developments in Narcosis.

April 16—Narcotics as a Means of Enjoyment in Theory and Practice.

April 17—Pharmacology of Heavy Metals.

April 18—Chemistry and Pharmacology of Digitalis and Its Allies.

April 19—Chemistry and Pharmacology of Digitalis and Its Allies (concluded).

The lectures will be illustrated with lantern slides and motion pictures; special demonstrations are to be announced later.

New Appointments to Staff of Stanford University Medical School.—Promotions of members of the staff of the Stanford University Medical School are as follows:

Academic Staff.—Promoted to associate professorships: Lloyd B. Dickey, pediatrics; William Dock, medicine; Maurice L. Tainter, pharmacology. Promoted to assistant professorship: John Kent Lewis, medicine. Promoted to instructorships: Edward M. Butt, pathology; Nelson J. Howard, surgery; Andrew B. Stockton, therapeutics.

Clinical Staff.—Promoted to associate clinical professorships: John J. Kingston, pediatrics; Mary H. Layman, pediatrics. Promoted to assistant clinical professorships: Otto Barkan, surgery (ophthalmology); Merrill C. Mensor, surgery (orthopedics); James C. Parrot, pediatrics. Promoted to clinical instructorships: Roger B. McKenzie, medicine; Edmund J. Morrissey, surgery.

Appointments in Therapeutics at Stanford.—The president and trustees of Stanford University have approved a full-time instructorship in therapeutics in the school of medicine. The first incumbent will be Dr. Andrew Benton Stockton, who will begin his duties in September. The position and the teaching of therapeutics will be in the department of pharmacology; the subjects and materials of research will be clinical under the joint direction of the executives of the departments of medicine and pharmacology. The instruction, which is given in the third year, will be supplemented as in the past by electives in the fourth year, consisting of bedside conferences on individual cases at the San Francisco Hospital under Dr. R. V. A. Lee, assistant clinical professor of therapeutics, and of lectures and demonstrations on selected topics in institutional therapeutics by Dr. Frederick Proescher, director of laboratories, Agnew State Hospital, and recently appointed lecturer in therapeutics. By combining instruction with effective research in clinical therapeutics it is hoped that the development of the subject may proceed along substantial lines.

Invitation to Women Surgeons.—A cordial invitation to all women surgeons to attend the Pan-Pacific Surgical Conference to be held at Honolulu, Hawaii, August 14 to 24, 1929, is extended through CALIFORNIA AND WESTERN MEDICINE by Ruth Alexander, M. D., chairman of the Women Delegates Committee.

The conference is called at the request of the Pacific Coast Surgical, Roentgenological, Oto-ophthalmological, Orthopedic, Gynecological societies and the Hawaiian Territorial Medical Association.

It will bring together surgeons from countries bordering on the Pacific and permit the exchange of surgical ideas and methods. Subjects of peculiar interest to any one country may be presented at the conference.

Program.—Each country is to select surgical subjects of particular interest to its workers.

Daily program: No routine clinics are to be held. Any man who has any new technique is to be given the opportunity to demonstrate it. Ordinary technique is to be presented only by moving pictures. Case presentations or dry clinics are to be particularly encouraged, these subjects to be presented between 7:30 and 8:30 each morning.

The presentation of papers will take place between 9 and 11 a. m., with only the synopsis to be given by the reader, the full papers having been distributed at least two days prior to the meeting to the three men who are to discuss the paper. All papers are to be published in full in the proceedings.

Round table discussions are to be held from 11 to

12:30 among groups of men who are particularly interested in specific subjects.

One afternoon is to be devoted to a special clinic on leprosy to be held at Kalihi Leprosarium, and one afternoon is to be devoted to hospital standardization. The other afternoons are to be left free for observation of the waves, sunshine, palm trees, and the human element. The evenings are to be occupied with papers, public lectures, and a minimum of formal dinners.

Information Furnished at Request of Registry of Technicians.—In accordance with the trend of the times, the practice of medicine is utilizing more and more the services of trained lay help. The advent of the laboratory as an indispensable aid to the diagnosis of disease has created a new specialty in medicine—that of clinical pathology. In order to carry on the numerous technical tests required in scientific diagnostic procedures the laboratory director has found it necessary to train the technical personnel. With the standardization of hospitals and the urgent call for qualified laboratory assistants there has arisen a demand for proper standardization of the preliminary education and technical training of those enrolled in this new profession.

There has also been a desire on the part of those engaged in this useful calling to raise their status, similar to the evolution of the trained nurse of a generation ago. This want is now being taken care of by a national organization consisting of a body of men who are most vitally interested in elevating the intellectual and technical status of laboratory workers. The American Society of Clinical Pathologists has taken upon itself the task of organizing a registry of technicians with rules under which those qualified by education, technical instruction, and moral character will receive a certificate.

The subject is of interest to physicians in every field of endeavor, as many of them are desirous of securing the services of technicians to carry on the routine laboratory procedures.

There is no doubt that the elevation of the laboratory technician to the status of a respected and useful calling will be a great help to the medical profession, to the patient, and to the scientific practice of medicine.

The headquarters of the Registry of Technicians of the American Society of Clinical Pathologists are located in the Metropolitan Building of Denver, Colorado.

Another very desirable feature of the registry is the facilities it offers in finding suitable placement for registrants and in aiding physicians to find desirable applicants.

The Neurological Institute of New York.—A gift of $150,000 by Mr. Edward B. Harkness to the Neurological Institute of New York; the opening of the outpatient clinics of the institute at the Medical Center; and the complete transfer in March of all work of this institute to the Medical Center were simultaneously announced today by Mr. Robert Thorne, president of that institution.

The total cost of completing and equipping the new building of the Neurological Institute at the Medical Center is $1,900,000, of which amount $300,000 remained to be raised at the time the matter was presented to Mr. Harkness. His gift of $150,000 leaves a like amount to be given by the American friends of neurology in order that this new building may be placed in operation in the month of March with building and equipment entirely paid for.

American Proctologic Society Meets in Detroit, May 13, 14, and 15, 1929.—The American Proctologic Society will hold its annual meeting in Detroit, "The Convention City," on May 13, 14, and 15. The Hotel Statler has been selected as headquarters for the scientific program, and the scientific and commercial exhibits.

Any doctor of medicine who graduated from a recognized medical school and who is a member in good standing of his county and state societies, and the American Medical Association, and who is especially interested in proctology, shall be eligible for election as an associate member of the American Proctologic Society.

Applicants for fellowship in this society must have limited their practice for at least seven years, and except under unusual circumstances applicants will not be considered who are not members in good standing in the American College of Surgeons. Men who have limited their practice to proctology for less than seven years are eligible as associate members without this restriction.

The following is the list of officers: Edward G. Martin, M. D., president, 1447 David Whitney Building, Detroit, Michigan; Arthur H. Earley, M. D., vice-president, Denver, Colorado; Walter A. Dansler, M. D., secretary-treasurer, 531 LaSalle Building, Minneapolis, Minnesota.

Any reputable medical man will be welcomed as a guest at this meeting. Registration fee, $5.

The Dr. Sofie A. Nordhoff-Jung-Cancer-Prize for the best work in the last years with regard to cancer investigation has been unanimously awarded by the Commission selected for this purpose to Professor Dr. Katsusaburo Yamagiwa, the well-known pathologist of the University of Tokyo.

Professor Yamagiwa and his coöperators have founded and developed the technique of creating cancer experimentally on animals by tarring their skin and by making injections of tar in the breast. Extensive literature concerning experimental cancer is based on these results of Professor Yamagiwa. More than this, Professor Yamagiwa has conducted most ingenious research on the origin of tumor cells and has given very important information concerning the method used to advance and to check the growth of tumor cells. The commission was composed of Professors Borst, Döderlein, v. Romberg, and Sauerbruch.

The Southern California Medical Association will hold its eightieth semiannual meeting at the Mission Inn, Riverside, on Friday and Saturday, April 5 and 6.

Among the subjects to be discussed at the meeting are the following: The practical value of blood chemical determinations; management of the luetic patient; the silent gall bladder; the crippled child in California, with special reference to its status under the Crippled Children's Act and the new school laws; the thyroid heart—its pre- and postoperative treatment; x-ray treatment of hyperthyroidism; aviation medicine; pleural abscess—medical and surgical considerations; the psychoneurotic patient and the physician; trifacial neuralgia—certain problems in diagnosis and treatment; aplastic anemias; perforating peptic ulcer; coccidioidal granuloma simulating spinal cord tumor; tuberculous laryngitis—treatment with trichloracetic acid; present-day postgraduate study in Vienna.

The Pavlov motion picture, "Mechanics of the Brain," will be shown, and Hon. Chester H. Rowell will give the Saturday evening address.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume II, No. 4, April, 1904

From some editorial notes:

. . . *Attend the Meeting.*—Every member of every county society is a member of the state society and should attend the meeting this month at Paso Robles. . . .

. . . You will hear a number of papers that will give you new ideas, and you will impart some of your own good suggestions to other physicians. You will meet a large number of fellow workers, become better acquainted with them, and enjoy the association and the friendship that will result. The change and rest will be just what you need after a hard winter's work, and you will return home after the meeting feeling as though you had been away for an additional summer vacation. . . .

. . . *Enforce the Law.*—For many reasons the work of the board in prosecuting illegal practitioners has been slow. Every trick of the law has been used to interfere with the work; and this by those who should be with us and not against us, as well as by the recognized quack. . . .

. . . *Pure Milk.*—"The registration of all dairies" is the first in the list of desiderata suggested by the Department of Agriculture in its pamphlet on the "Milk Supply of Two Hundred Cities." The second suggestion is that there should be "Official endorsement of properly conducted dairies. . . . "

. . . *Plague Case No. 118,* occurring in an Italian housewife, has been bacteriologically confirmed, according to the report to the Public Health and Marine Hospital Service, by Dr. Rupert Blue. . . .

From an article on "Organization and the Association Journal" by Philip Mills Jones, M. D., San Francisco:

. . . In this world you get just about as much out of a thing as you put into it. You get mighty little for nothing. Granted a fully organized state medical society that sits calmly down and does nothing for its members, and in about two years it will have woefully shrunk. Given the same society constantly at work for its members, producing what they want and protecting them in every way that it can, the society feeling will remain strong and the organization will not lessen in numbers. . . .

. . . The state association should have a mouthpiece (its journal) and through it should speak at all times to its members. It should speak with profound courage and utter straight-out truths for the help and the guidance of its members, and for their protection. That a state journal may do these things and may adhere strictly to the right path in the matter of its advertising, and still build up enough productive pages to pay, has been demonstrated. . . .

. . . Not only should it be the duty of every state association to publish its own journal, but to my mind it is the only way in which full and complete organization can be secured and, when secured, maintained. . . .

From an article on "The Rat and His Parasites," by B. J. Lloyd, M. D., Assistant Surgeon United States Public Health and Marine Hospital Service:

Although there are several hundred species of rodents included in the generic term "mus," we need not as a rule, concern ourselves with distinctions. The "Norway" or common brown rat (*Mus decumanus*) is so well-nigh universal and unfortunately, so intimately associated with sanitary and shipping interests, and its habits are so nearly representative of the tribe, that we can practically pay our respects to the entire group in a discussion of this species.

The parasites to which I would invite your attention in this paper may be divided into trematodes, or flukes; cestodes, or tapeworms; nematodes, or round worms; protozoa, insects, and vegetable microorganisms. . . .

From an article on "The Legal Definition of the Practice of Medicine" by William C. Tait, Ph. D., LL. B., San Francisco:

. . . Such was the intention of our legislature in providing by the first subdivision of Section 16 defining the practice of medicine that "those who profess to be, or hold themselves out as being engaged as doctors, physicians or surgeons in the treatment of disease, injury or deformity of human beings" shall be deemed as practicing medicine or surgery. This is one of the most important features of our Medical Practice Act. . . .

From reports of county medical societies:

Los Angeles County.—The Los Angeles County Medical Association held a regular meeting at Blanchard Hall on Friday evening, February 19, 1904.

The first paper of the evening was read by Dr. W. M. Lewis on "Intestinal Obstruction from Peritonitis Due to Traumatism, with Report of a Case." . . .

Monterey County.—The County Medical Society met in regular session for the month of March at the Carmelo Hotel, Pacific Grove. The president, Doctor Edwards, in the chair, and a good attendance of members participated in the meeting. . . .

Orange County.—The Orange County Medical Society met in regular session in Santa Ana, Tuesday, March 1.

Dr. F. E. Wilson of Westminster read the paper of the evening, his subject being "Tonsillitis." The paper was the cause of quite an animated discussion, the principal feature of the discussion being the relationship existing between tonsillitis and rheumatism, which, I am sorry to say, was not definitely settled. . . .

San Francisco County.—The regular monthly meeting of the San Francisco County Medical Society was held March 8, 1904, the president, Doctor Rosenstirn, in the chair.

The subject of the scientific program of the evening was "Tumors of the Brain," Dr. Leo Newmark treating of their diagnosis, and Dr. Fred Fehleisen of the modern technique of exposing and removing them. Both papers were most favorably received. . . .

From some personals:

Dr. R. V. Day has been appointed City Chemist of Los Angeles.

Dr. Charlotte Blake Brown of San Francisco has retired from practice. Doctor Brown received her certificate in 1876, and has been a member of the state and county societies since that year.

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* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

DEPARTMENT OF PUBLIC HEALTH

By W. M. Dickie, *Director*

Vaccine for Rocky Mountain Spotted Fever Available.—The California State Department of Public Health has been advised that vaccine for Rocky Mountain spotted fever is now available for distribution to physicians of California. Requests for vaccine should be sent to the officer in charge of the United States Public Health Service, Hamilton, Montana. Such requests should state the number of persons for whom the vaccine is desired. No charge will be made

for the product. Each lot of vaccine will be accompanied by full directions for administration and by cards to be filled out with the necessary data for each person vaccinated. The cards are to be returned to the station at Hamilton. The vaccine should be kept in a cool place, but not be allowed to freeze. It is given hypodermically. It is of no value in treatment, but should be given ten days before exposure. It will protect the individual for one season, and persons living in infected districts should be revaccinated annually. The vaccine is distributed by the United States Public Health Service to physicians only. Ten years ago there was no practical way of protecting the individual from the bite of infected ticks. The laboratory at Hamilton, after much laborious work, has developed the Rocky Mountain spotted fever vaccine, which is giving satisfactory results in the prevention of the disease. Fortunately cases of Rocky Mountain spotted fever have occurred in California in the northeastern part of the state only. Individuals residing in this section of the state who are liable to exposure to woodticks and individuals who are planning trips to that section of the state during the spring and summer months should be given the protective vaccine.

Epidemic Encephalitis and Epidemic Meningitis Placed Under Regulation with Epidemic Poliomyelitis. The California State Board of Public Health, at its regular meeting held in San Francisco, March 2, removed the regulations for the control of epidemic meningitis from those published in Special Bulletin 25, which provide measures in the prevention of chickenpox, mumps, measles, German measles, whooping-cough, epidemic meningitis, and trachoma. The regulations for the control of poliomyelitis were revised so as to apply also in the control of both epidemic meningitis and epidemic encephalitis.

The quarantine for all three of these diseases was placed at not less than three weeks from the beginning of the attack. The quarantine applies to persons who have been in frequent contact with the patient and are members of the same household, with the exception that the local health authority may, with the approval of the State Board of Public Health, exclude the wage-earner from the area of quarantine on condition that adequate precautions are observed. Other contacts who are not members of the same household shall be kept under observation for a period of fourteen days and shall not be permitted to engage in any occupation or practice which would bring them into contact with large numbers of persons, especially children.

The regulations for the control of epidemic poliomyelitis, as published in Special Bulletin 15, have not been subjected to many drastic changes. Health officers will be supplied with copies of the new regulations as soon as they are received from the printer.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. Pinkham, M. D.
Secretary of the Board

News Items, Doctors of Medicine, April 1929

Dr. C. E. Schoff of Sacramento was appointed to the Board of Medical Examiners to succeed A. K. Dunlap, resigned.—*Redding Courier Free Press,* February 1, 1929.

Dr. George N. Stockwell of this city was free today to reëstablish his medical practice in Ventura. The revocation of his license was lifted yesterday by the State Board of Medical Examiners subject to five years' probationary period. A score of prominent Venturians went to Los Angeles for the hearing and testified as to the physician's personal character and professional standing in the community.—*Ventura Star,* February 7, 1929.

Declaring that his office did not have sufficient evidence to obtain a conviction, Deputy District Attorney Clarence Hunt today moved to dismiss the criminal action pending in Department A of the Superior Court against Dr. Ernest A. Lupton, charging violation of the State Narcotic Act (*Long Beach Press Telegram,* February 8, 1929). (Previous entries, October and December, 1928.)

R. L. Buffum, Long Beach physician, was arraigned before Municipal Judge Ambrose yesterday on charges of violating the State Poison Act. Judge Ambrose assigned March 12 next as the date for preliminary hearing and fixed bail at $2500. According to Deputy District Attorney Russell, Buffum was arrested by State Narcotic Agents Dundas and Byrne, who declared that he wrote prescriptions for narcotics which were later used by addicts in obtaining drugs.—*Los Angeles Times,* February 28, 1929.

The license of Frank Burleigh, M. D., to practice as a physician and surgeon in the State of California was revoked after a hearing by the Board of Medical Examiners, February 6, 1929. (Previous entry, September 1926, April 1927, December 1928, and February 1929.

General News Items

Another diploma mill certificate, like Banquo's ghost, arose out of the past yesterday to confront a drugless physician seeking from the State Board of Medical Examiners the restoration of his old license. The certificate in question made its appearance in photographic form together with charges by Dr. Charles B. Pinkham, secretary of the board, that the old Pacific Medical College, a Los Angeles "institution," peddled M. D. degrees like the proverbial hot cakes. Dr. John E. Jolley, holder of chiropractic and osteopathic certificates, was the petitioner. . . . In questioning Doctor Jolley on his medical qualifications Doctor Pinkham brought out the fact that Doctor Jolley, among other credentials, received the M. D. degree from the Pacific Medical College of Los Angeles. Doctor Jolley admitted that he spent but a few months at this institution. . . . Then Doctor Pinkham produced a photostatic copy of an M. D. diploma issued by the Pacific Medical College to Otis Charles Warburton and signed by the "faculty." Among the names of this list appeared John E. Jolley, M. D., professor of therapeutics and physiology. After some scrutiny of the document, Doctor Jolley admitted it was his signature. . . . Then Doctor Pinkham brought out the additional fact that the diploma from the "Osteopathic School" claimed by Jolley also is considered worthless by the California Medical Board (*Los Angeles Examiner,* February 6, 1929). Restoration of license was denied.

Medicine firms which fraudulently advertise through the mails were dealt a blow here yesterday by the Federal Circuit Court which upheld P. P. O'Brien, Los Angeles postmaster, who barred advertising of a preparation known as "Tuberclecide" dispensed by the Aycock Medical Institute of Los Angeles. Following a hearing, O'Brien issued a "fraud order" which threw the advertising out of the mails. The Circuit Court branded the advertising as artfully phrased to appeal to the afflicted and persuade them that an efficacious remedy had at last been found (*San Francisco Chronicle,* October 30, 1928). The files of the Board of Medical Examiners, extending back to 1915, show voluminous information relative to Charles F. Aycock and his co-called "Tuberclecide." It is reported that Aycock claims to hold a diploma issued by the St. Louis College of Physicians and Surgeons, and it is further reported that the post office department issued a "fraud order" against Aycock on December 31, 1927. (Previous entry, June 1928.)

In the case of the People vs. Christian Bergenhammer, Mr. H. J. Dugan, assistant district attorney, San Luis Obispo County, reported that the defendant "changed his plea from not guilty to guilty for a violation of the State Poison Law, which involved violation of the Medical Act, in that morphin was administered. The change of plea was made on the promise that the violation of the Medical Act charge would not be pressed, and both cases were disposed of in that manner."

Superior Judge Fred V. Wood of Alameda County yesterday confirmed the $300 fine against J. C. J. Chartier, druggist, for violation of the State Medical Practice Act. Chartier was arrested in connection with the death of Hazel Portlock, four, whose case he had diagnosed as "sore throat" while the child was suffering from typhoid fever. He was accused of practicing without a license (*San Francisco Examiner,* February 10, 1929). (Previous entries, May, September, October, and December, 1928.)

Charged with practicing medicine without a license, R. V. Crawford, an instructor at the San Francisco College of Chiropractic, 1122 Sutter Street, was arrested yesterday by an inspector for the State Board of Medical Examiners (*San Francisco Examiner,* January 23, 1929). According to the report of our investigator, Crawford was alleged to have "put one electrode of a diathermy apparatus on her (the patient's) back between her shoulder blades and the other to her tonsils, burning quite badly." The report further relates that following the patient's protest to the Chiropractic College, she was given a check for $20, on the lower left-hand corner of which was written "Refund for tonsillectomy."

Mrs. Ernestine Engelhardt, 1000 Thirty-ninth Street, was found not guilty of violation of the State Medical Practice Act by a jury before Police Judge Howard L. Bacon of Oakland. Mrs. Engelhardt was arrested by Inspector J. W. Davidson from the State Medical Board, February 8, and charged with practicing medicine without a license. Records show that she pleaded guilty to a similar charge November 8, 1927, and paid a fine of $100. Davidson alleged that at the time of her arrest this year, she was prescribing medical treatment for a cancer (*San Francisco Chronicle,* March 1, 1929). (Previous entry, California and Western Medicine, October and December 1927, January and May, 1928.)

"The eyesight swindlers are again operating in California, individuals named William McBride and Roy E. Francis recently having been reported arrested in Imperial County, using the same old fake radium operation." It is reported that William McBride has been in trouble in the State of Oregon, we having been informed that he "was arrested and jailed in Hillsboro and McMilville, Oregon." The Los Angeles police also report a pair of alleged eyesight swindlers working in Los Angeles the latter part of 1928. Another pair has just been reported operating in the northern end of the state. (Previous entries, February and March, 1926; May, 1927.)

Charged with practicing without a license, R. Thompson Fowler, 5380 Foothill Boulevard, Oakland, was arrested yesterday on a warrant sworn to by J. W. Davidson of the State Board of Pharmacy (Medical Examiners). Fowler is alleged to have been selling what he claimed was a remedy for tuberculosis but which the board will contend was devoid of curing qualities. He was released on $500 bail and will come before Police Judge Edward Tyrrell for arraignment Monday (*San Francisco Examiner,* February 10, 1929). (Previous entries, California and Western Medicine, May, June, and August, 1926.)

As the result of the death of a patient from an asserted illegal operation, Mrs. Florence B. Goodhall, forty-eight, a chiropractor living at 2318 West Washington Boulevard, was held in the county jail today on warrants charging murder and manslaughter. The patient was Mrs. Z. P. Mayhan of Southgate, who died on January 10, in Roosevelt Hospital.—*Hollywood News,* January 18, 1929.

Juan de Garay, asserted love cult healer, recently convicted of violating the State Medical Act, has been sentenced by Municipal Judge Charles D. Ballard to pay a fine of $500 or serve ninety days in jail. Unable to pay the fine, Garay was behind the bars today. Several days ago Jesus, brother and asserted steward for the healer, pleaded guilty to a charge of vagrancy and is now serving a sixty-day jail term (*Hollywood News,* February 16, 1929). It is reported that Juan de Dios Garay was sent to McNeill's Island for five years and sentenced to pay a fine of $6000 as a result of information furnished the Post Office Department in 1924.

A sixty-day jail sentence and a $200 fine were imposed on W. D. Hoque today by Superior Judge L. W. Fulkerth when he pleaded guilty to a charge of practicing medicine here without a state medical license. . . . Attorney W. J. Brown, who represented Hoque, vigorously argued against the jail sentence. He said it was Hoque's first arrest and that "never before in the history of the county has a defendant been sentenced to jail for such an offense." The judge viewed the case as a more flagrant violation than previous cases drawn to his attention (*Modesto News-Herald,* February 2, 1929). In the Modesto *News-Herald* of February 3, 1929, appeared an editorial commenting on the remarks of the defendant's counsel "that never before in the history of Stanislaus County has a defendant been incarcerated for such an offense," the editorial further relating, "If such be the case Superior Judge L. W. Fulkerth, who imposed the sentence, has broken ground in the right direction. He is to be commended. From this moment the credulous and gullible of this community are less likely than heretofore to be the prey of irresponsible practitioners or charlatans, and the protection given the public will be greater in proportion as jail terms are made the common penalty that quacks must pay in this county. It is a form of punishment far less popular with the grafting fraternity than the payment of fines they often can well afford." (Previous entry, February, 1929.)

According to reports, Thomas Dale Givan was found guilty in Los Angeles in February 1925, and on February 27 was sentenced to pay a fine of $200 or serve thirty days in the city jail.

Harold Johnson, D. C., drugless practitioner of Los Angeles, was found guilty by the board in Los Angeles on February 5, 1929, on a charge of violation of Section 14 of the Medical Practice Act, and was placed on probation for a period of five years.

Alleged to have performed asserted illegal operations upon three young Pasadena married women, Mrs. Frances Culp Leano, thirty, 141 Valley View Street, was being held in the city jail today.—*Pasadena Post,* February 4, 1929.

Dr. J. H. Wolfe, bacteriologist, charged with disturbing the peace last February 5 in the office of Dr. George Parrish, city health officer, was today found guilty in the court of Municipal Judge Charles Ballard and fined $100 with the alternative of twenty days in jail.—*Los Angeles Herald,* February 28, 1929.

Mrs. Rosina Morra, forty-nine, of 571 Forty-sixth Street, is at liberty today under bail of $500, following her arrest yesterday afternoon on a charge of practicing medicine without a license (*Oakland Tribune,*

February 9, 1929). Report relates that on February 27 Mrs. Morra pleaded guilty of violation of the Medical Practice Act and paid a fine of $100.

Asserting that unless prevented by the court, an order revoking her osteopathic license will be operative on February 7, Maude G. Potts of Modesto yesterday filed a petition for writ of review in the Superior Court, asking that the Board of Osteopathic Examiners of California be compelled to certify fully the transcript of record and proceedings of her testimony before that body at Sacramento on January 7 last.—*Modesto News-Herald,* February 5, 1929.

According to reports, Frank Weege on January 21 pleaded guilty in the court at San Pedro of violation of the Medical Practice Act and was sentenced to pay a fine of $100 or serve twenty days in the city jail, the jail sentence and $75 of the fine being suspended for two years.

"Dr." E. T. Webb, who gave his address as 1324 Gates Place, Pasadena, was in Oakland city prison last night held for investigation. . . . Webb admitted last night that he had called on Mrs. Whittemore the day before she died. Webb also admitted that he was arrested in Los Angeles four years ago on charges of practicing without a license and that he was arrested in Chicago twenty-five years ago on a similar charge. . . . Webb, according to Davidson, has been under surveillance for the past five years. He travels up and down the coast, Davidson said, and receives a monthly fee from patients who use his medicine.—*San Francisco Examiner,* March 11, 1929.

University Will Coöperate With State Division.—In addition to carrying on research for the relief of human beings, Hooper Foundation for Medical Research is coöperating with the State Division of Fish and Game in research to control or prevent diseases among fish or wild game of California, according to a note appearing in the latest report of President W. W. Campbell to Governor C. C. Young.

Dr. K. F. Meyer, director of Hooper Foundation, explains that, "The study of the diseases of fish and game is a novel undertaking in California and it is anticipated that research along these lines will furnish an invaluable source of material not only of practical but also of theoretical interest."

Two Scientists on Staff.—Two men have now been added to the Hooper Foundation staff as representatives of the Fish and Game Commission. They are Dr. H. Van Roekel, pathologist, and P. A. Shaw, toxicologist.

Doctor Van Roekel explains that it is only in recent years that the importance or danger of disease among wild animals and fish has been recognized. But present evidence makes it certain that wild animals are not only subject to diseases which may deplete their own numbers, but that in certain cases may be transmitted to domestic animals.

Doctor Van Roekel is at present working on the diseases of deer. He finds that these animals like domestic stock are subject to lung worms, stomach worms and intestinal worms, which sometimes weaken deer to the point of death or lower their resistance to other diseases.

Study Wild Duck Mystery Disease.—Shaw is working on a mysterious malady among wild ducks which leads to the paralysis and death of many of these game birds in certain regions. Estimates that in some feeding grounds, from two to five per cent of the ducks succumb to this disease, have been made by observers. At the Hollywood Gun Club near Bakersfield, eighty-five sick ducks were found in one day. The disease has also visited the Tule Lakes in northern California, and Buena Vista Lake, near Bakersfield. Studies of the same disease in Utah, Shaw says, led to the tentative conclusion that alkali was the cause of the trouble. But ducks die in California where the alkali is not in sufficient quantities to be the cause. Sick ducks taken from the place found and treated elsewhere, usually recover.

The research workers have also worked on the problem of coccidiosis, a common chicken disease, to which they find pheasants are also susceptible; and blackhead, which attacks wild turkeys. In fish they are studying many forms of mold, fungi, and skin parasites which attack fresh-water fish. One disease, furunculosis, which has caused some trouble in fish hatcheries, is being studied. At present it is somewhat of a mystery.—*U. C. Clip Sheet.*

Radio Equipment at University of California at Los Angeles Will Be Most Modern.—Radio in its most modern form will be an important part of the equipment of the new University of California at Los Angeles when it opens its doors next September. All class rooms of the auditorium building will be equipped for radio reception, as auxiliary to the radio system that is being installed in the large auditorium.

Although the auditorium will seat 1800 persons, the university expects to have nearly 6000 students next fall. In order that all important broadcast programs deemed desirable for the students to hear may be brought to all, amplifiers will be placed in the class rooms.

The most modern radio machinery will be set up in the auditorium, and important national broadcast programs, as well as local ones of an educational nature, can be received there.

One of the concluding steps toward the preparation of the new campus for next fall was taken when bids for the Education Building, fifth major unit of the group being constructed, were opened. These will be submitted to the regents at the April meeting, at which time it is expected the contract will be awarded. The contract calls for completion of this three-story structure in one hundred and eighty days, necessitating unusually speedy construction. It will house the psychology, fine arts, home economics, music, and teaching departments, and will contain laboratories, exhibit galleries, and two small auditoriums.—*U. C. Clip Sheet.*

An Appeal for Further Information.—Claim is being made by people who are using diathermy, and especially by Harry Eaton Stewart, M. D., of the United States Marine Hospital, New York, after six years' experience, that the mortality of pneumonia has been definitely decreased in cases treated by this agent. It is also claimed that great relief is experienced by the patient after the application of this method.

Since pneumonia is a serious disease contributing materially to the mortality rate, it would seem reasonable to expect that physicians in large hospitals would inform the general public as to the success of this treatment in institutions under their care. If the method has not been employed in hospitals where pneumonia cases are treated in considerable numbers, may it not be reasonable to expect that the hospitals should pay some attention to this form of treatment and report opinions with respect to the use of diathermy?—*The New England Journal of Medicine,* March 1929.

Pure Water and Pure Milk Save Children.—Fifteen thousand young children are probably being saved in Pennsylvania each year by the purification of water supplies and the inspection and pasteurization of milk, according to an estimate of the Pennsylvania Department of Health. During 1927 only about one-fifth as many children under five, in proportion to the population of that age in the state, died from diarrhea and enteritis as in the period from 1906 to 1910.—*Children's Bureau, United States Department of Labor.*

WILLIAM HENRY KIGER

President, California Medical Association

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CALIFORNIA MEDICAL ASSOCIATION AND PUBLIC HEALTH

PRESIDENTIAL ADDRESS, CALIFORNIA MEDICAL ASSOCIATION, FIFTY-EIGHTH ANNUAL SESSION

By WILLIAM H. KIGER, M. D.
Los Angeles

THE objects of the California Medical Association as defined in the constitution, are "to promote the science and art of medicine and the betterment of public health."

The advance of the science of medicine more or less has run parallel with other scientific advance. Before education was general, medicine reflected the mental attitude of those it served. When demons were thought to be the cause of disease, weird noises or drums or fantastic dancing were used by the medicine men to scare them off. Even in this enlightened age, despite the scientific facts revealed by the microscope, many minds have not progressed beyond the stage of demonology. These minds deduce their medical beliefs from principles or premises based on tradition and superstition. Nevertheless, with education, there has been steadily building a foundation of scientific fact, on which the present science and art of medicine will firmly rest. The discoveries of Jenner and Pasteur gave to the healing art its first great scientific impetus.

About 1796 Edward Jenner, a practitioner of Gloucestershire, England, transferred cowpox infection from the hand of a milkmaid to the arm of a man, and so established the fact that immunity could be produced. As a result of vaccination, smallpox, the dread blemisher of human beauty and destroyer of human life, has become a thing of no moment, except to those persons who have contracted the disease by foolish neglect of the protection offered by vaccination. But for Jenner's discovery, probably 50 per cent of the people of this city would have their faces permanently scarred and pocked.

Surgeon-General Cumming's latest report states that the United States had more smallpox last year than any other country in the world, except India; over thirty-four thousand cases. This is a situation that is difficult to understand. The personal liberty of opinion, so fearfully secured to the pioneers who settled America, in this instance acts as a boomerang for destruction. Federal laws, stringently enforced, protect our seaports from infestation by plague, or smallpox or other scourges, but within our country itself, no federal law enforces vaccination. States may, but more often do not have adequate laws concerning vaccination. A result is all this deplorable illness due to smallpox, and this in the face of the almost universal education in America's public schools, and the positive and unassailable truth that vaccination protects against this disease. Despite education and science there are prejudiced believers in cults who question the effectiveness of vaccination and attempt by precept and example and propaganda to prevent its employment.

Louis Pasteur's discovery that bacteria are the direct cause of many diseases has been applied practically by medical practitioners and so has saved untold thousands of lives. The complete eradication of diphtheria, scarlet fever, typhus and typhoid fever, and other plagues of bacterial origin that have yearly reaped their harvest of thousands of human lives are falling before the gigantic march of preventive medicine. Cholera, which once was the dread of all nations, has become but a name in civilized countries.

Joseph Lister, following the work of Pasteur, in 1878 showed how bacterial infection of wounds could be prevented by applying the principles of antisepsis in surgical operations. This momentous discovery revolutionized surgery and greatly reduced mortality after operation.

These have been only a few of the contributions of the physician to the march of human progress. Within the span of this generation more has been added to the sum of human knowledge than in any previous period of the world's history. Fundamental principles of science have found practical application beyond even the vision of the dreamer. Through their application of recent scientific knowledge, man has been given, in a measure, mastery of the land, sea, and sky; news and knowledge are thus promptly interchanged and the advancement of one people becomes the heritage of all.

In the field of medical research the advancement has been little less than remarkable. Rapid strides have been made. Chemistry in medicine has taken a prominent place. Physics, biochemistry, pathology, bacteriology, sanitation, and preventive medicine have been developed to a high degree, and have contributed much to the sum total of medical knowledge.

Without due attention to the betterment of public health no lasting progress can be made. Subject to the great biologic laws, the actual existence of a nation can be secure only through the understanding and control of the factors that

hamper or promote human welfare. History warns us that the civilized races can lose all that they have gained if they fail to profit from the lessons of experience and fact. Many nations and races are known today only by a few pots or arrowheads. One biologic mistake or another has merged them with the dust.

What then is the best way to make practical application of the discoveries made in medicine that the object of this California Medical Association, namely, "the betterment of public health" may best be achieved?

HEALTH EDUCATION

Health education of the public, through the magazines, newspapers and the radio, personal examination and instruction, and enforcement of public health laws by properly qualified officials, will do much to attain the ideal of the medical profession—the betterment of the health of the nation. As a profession, we are now deeply enmeshed in legislation and in the service of government. In many instances those outside the profession have without our aid made the laws that govern medicine. Physicians until recently have contributed insufficiently to public health education. *The Saturday Evening Post* recently said that "the science of medicine, as far as the layman is concerned, is the most tongue-tied of all the learned professions." It called attention to the difficulty surrounding the scientific vocabulary of medicine as a means of teaching the public, and the shying attitude of the profession to the lay press. It made the statement, "The enlightened physician has a great body of news of the highest importance to communicate to the nonmedical reader. When the medical profession becomes more fully awake to its responsibility in this field, it is to be hoped that it will perceive the gravity and importance of its problem and attack it in force over a nation-wide front. Some national body, such as the American Medical Association, which has made such a good start along these lines, ought to take up the matter in a big way and work out a comprehensive program, which would unify the agencies which are already in the field, and cover the lay press of the whole country." This criticism from a lay journal is perhaps not wholly undeserved, although much progress has been made along these lines. Four years ago trustees of the American Medical Association entered the field of public health instruction by establishing *Hygea*, a monthly public health journal, published especially for the lay public, and it has already qualified as a public health journal of great worth. In our own State of California we have a similar publication, *Better Health*, which has done a big service in educating the laity on sound public health principles. Many of our great newspaper syndicates publish daily health columns from reputable medical men, and refuse to accept propaganda of quackery, and vicious nostrum advertisements, in the interests of public health.

Periodic physical examination of the supposedly healthy is one of the public health measures that has been approved by the profession. The House of Delegates of the American Medical Association is on record as approving this measure. State and county medical associations are urged not only to undertake the actual work of examination, but also to promote this helpful work in every way possible.

A cancer week, a tuberculosis week, and a baby welfare week have been held in many cities, at which times the staffs of hospitals have examined the public free of charge. These examinations have done untold good and have been the means of discovering many cases of both cancer and tuberculosis in the earliest stages, when expectation of permanent cure is most hopeful.

This task of wholesale examination is a stupendous one, but it is believed by physicians that where it is systematically and thoroughly carried out in any state or community that the average life of the inhabitants of that locality will be increased at least seven years over the twenty that have already been added to the average life in the last half century.

The radio likewise should serve the cause and be made to spread the gospel of good health. At present, in California, it is used mostly by the cultists to spread propaganda of misinformation and to bring the unsuspecting public to their offices. In many of the eastern states radio instruction in public health matters is rapidly increasing, as a result of definite programs arranged by state and county medical associations. I would urge that our state and county medical associations inaugurate a similar plan. Public officials are beginning to appreciate their responsibility regarding these measures, and realize that one of the greatest functions of government is the preservation of public health. The governor of one of our largest eastern states in his message to the state legislators had this to say: "I renew the recommendation of a year ago, that careful consideration be given to the protection of the people of this state from unlicensed and unqualified persons practicing medicine. The coöperation of the medical profession is an essential factor in the protection of the public health as well as in the care of the sick. A very large part of modern public health service is urging the people to get the advice of their physician before serious and perhaps incurable conditions have developed. Such efforts come to naught if unqualified persons are allowed to hold themselves out as physicians. The subject is a difficult one, but the State of New York should take the lead in establishing high standards of medical practice and providing a practical plan for their enforcement. It is a matter of justice to qualified physicians and of protection to the public." Let us hope our Governor and Legislators will emulate this fine example of humanitarianism and help this state, especially the southern part, rid itself of some of the unqualified, or at least help the public to protect itself against those that are to come, and to compel everyone that is practicing the healing art to set forth his

qualifications in such a way that the stranger may know what sort of practitioner he is employing.

Dr. Wendell C. Phillips in his presidential address to the American Medical Association at Dallas, Texas, had this to say: "The proposed campaign of public health education will surely create a demand for new contacts between patient and physician." Physicians must give a different significance to the word "patient," for in the new order of things both sick and well people must and will be on record in the lists of their physicians. They will demand that their needs shall be met. Doctor Phillips warns that unless the medical profession organizes to meet the demands in the proper spirit, various forms of state medicine are likely to become the order of the day.

Public health education is the outstanding need of the hour. The gospel of personal and community health is complex. It should be promulgated by health departments and agencies, by lectures, radios, and films, but such service will never reach its highest efficiency until it includes a maximum of direct personal instruction by the properly qualified family physician.

1930 Wilshire Boulevard.

ARTERIOVENOUS ANEURYSM*

ITS PHYSIOLOGIC EFFECTS UPON THE CIRCULATION AND THEIR IMPORTANCE IN RELATION TO SURGICAL TREATMENT

By Emile Holman, M. D.
San Francisco

Discussion *by Charles D. Lockwood, M. D., Pasadena; Edgar L. Gilcreest, M. D., San Francisco.*

An arteriovenous aneurysm or fistula is characterized by certain physiological phenomena which make it one of the most fascinating and unique lesions in medicine. An intimate knowledge of these phenomena is essential in executing properly the surgical measures necessary to eliminate the aneurysm.

In civil life the lesion is produced by bullet wounds or knife thrusts, and in industrial life, by flying steel. There is usually a history of profuse and alarming bleeding for several moments, sometimes easily controlled by pressure, but occasionally a tourniquet is necessary to prevent exsanguination. The exact nature of the lesion is usually not recognized until several days or even weeks later, when the characteristic thrill and bruit are first noted. These are continuous throughout the cardiac cycle, markedly accentuated in systole, and are best heard over the site of the fistula although they may extend for some distance both proximally and distally to it.

A direct communication between one of the large arteries and its accompanying vein introduces a profound disturbance in the hydraulic and physiologic laws governing the circulation of the blood. Such a communication provides two routes through which the circulating blood may pass. It may flow through the normal channels as represented by the system of heart-artery-capillary bed and vein; or it may traverse a shorter circuit consisting of the heart-artery-fistula and vein. Due to the fistula, the peripheral resistance in the shorter circuit is considerably less than the resistance in the normal circuit. Obeying the law of hydraulics that flowing water seeks the line of least resistance, it is inevitable that a considerable volume of blood will be diverted from the general circulation through the fistula.

Obviously the extent of the reduction in peripheral resistance and the amount of blood diverted through the fistula will depend upon the size of the opening. A small communication not over 3 to 4 millimeters in diameter may exist between peripheral vessels for years and, aside from the mild local disturbance due to the continuous thrill and bruit, no other effects develop. Both clinical [1] and experimental[2] evidence are at hand illustrating the innocuous character of the small fistula. The larger sized fistulae, 5 to 15 millimeters in diameter, divert so large a volume of blood from the general circulation that startling effects upon the circulatory mechanism are produced. These are comparable to the effects of bleeding from a large vessel, except that in this instance the bleeding occurs into a vein. The immediate effect of this diversion of a large volume of blood into a shorter circuit is a great fall in general blood pressure. Although no observations upon the immediate effects of a fistula in clinical cases have been recorded, very accurate observations have been made in the experimental animal (Fig. 1).

Experiment I

On September 18, 1923, a preoperative blood pressure of 216/106, with a pulse of 84 was recorded in dog L28. On October 22 an anastomosis between the right common iliac vessels was established, the artery and vein measuring 5 and 7 millimeters respectively. The fistula was 2.5 centimeters long. A pulse rate of 120 increased to 140 during the operation. When the fistula was opened, the pulse rate immediately rose to 210, where it remained during the rest of the day. On the following day the blood pressure was very low, 110/60, and the pulse rate still remained around 200. The subsequent blood pressure and pulse readings are recorded in the chart. The pressures in the right leg below the anastomosis were always very low, approximately 50/20, indicating a fairly complete diversion of blood through the fistula.

COMMENT

It is observed that the great fall in blood pressure was accompanied by a marked acceleration in pulse rate. Within a few days a gradual readjustment began which ultimately led to a complete recovery of systolic blood pressure, a permanent reduction in diastolic pressure, and a slight but permanent acceleration in pulse rate.

These observations are easily understood if general blood pressure is considered as being the resultant of three main factors: the cardiac output, which is determined by venous filling and by rate of cardiac contraction; peripheral resistance, which includes also the effect of vasoconstriction and vasodilatation; and the total blood volume. A decrease in any one of these three factors results

* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

in a fall in blood pressure. The lowered peripheral resistance introduced by the fistula and the segregation of a large volume of blood into a shorter circuit have a combined effect of lowering materially the blood pressure in the general circulation. The immediate compensatory adjustment to maintain a blood pressure compatible with life is an increase in cardiac output through an increase in the rate of cardiac contraction. The increased venous filling resulting from the introduction of arterial blood through the fistula directly into the venous bed enables the heart to increase its output by such an increase in the rate of contraction.

The increase in cardiac output in the presence of a fistula was easily demonstrated by the Fick method of determining blood flow through a measurement of oxygen consumption.[3]

Experiment II

The volume flow of blood through the lung of dog L32:

A. Before the Establishment of an Arteriovenous Fistula of the Femoral Vessels.—May 28, 1923, 3388 cc. per minute. May 30, 1923, 2589 cc. per minute.

B. In the Presence of the Fistula.—June 12, 1923, 4750 cc. per minute. June 22, 1923, 5750 cc. per minute. June 25, 1923, 4315 cc. per minute.

C. Fistula Occluded by Digital Pressure.—June 25, 1923, 2945 cc.

D. After Elimination of the Fistula by Operation. June 27, 1923, 2720 ccm. per minute. June 29, 1923, 2200 cc. per minute.

COMMENT

In the presence of a large fistula the rate of blood flow through the heart was practically doubled. From a study of the chart in Fig. 1 it is apparent that an increased rate of cardiac contraction with its great increase in cardiac output may be an adequate compensatory adjustment to maintain a blood pressure compatible with life, but that even a pulse rate of 200 did not produce a blood pressure of more than 110/60 on the day following the production of the fistula. In the succeeding days, however, there followed a gradual recovery of systolic blood pressure to a normal level, and to explain this recovery we have postulated a second compensatory adjustment in the form of a gradually increasing total blood volume.[4] That such an increase in blood volume occurs is apparent from the following experiment (Fig 2).

Experiment III

In dog L3, weighing 15 kg., a large fistula 3.4 cm. long was established November 9, 1922, between the right femoral artery and vein, measuring 4 and 6 mm., respectively. After several months this dog showed a marked increase in blood pressure and a retardation of pulse rate when the fistula was closed, with a definite increase in the size of the cardiac area, and also a dilatation of the proximal vessels. On November 20, a blood volume estimation of 1400 cc. was made, and by June 12 the volume had increased to 1680 cc. On June 16, the fistula was excised, and on the following day a blood volume determination of 2170 cc. was made. This was repeated four days later, and a volume of 2150 cc. was recorded; twenty-five days later it had, however, again dropped to 1520 cc., and in the following October, 1923, it was estimated at 1370 cc. On November 9, a second fistula was performed between the iliac vessels, and on January 14, 1924, a blood volume determination of 1530 cc. was made.

COMMENT

As confirmatory evidence of the contention that the general systemic effects produced by a fistula depend upon its size, it was found that this in-

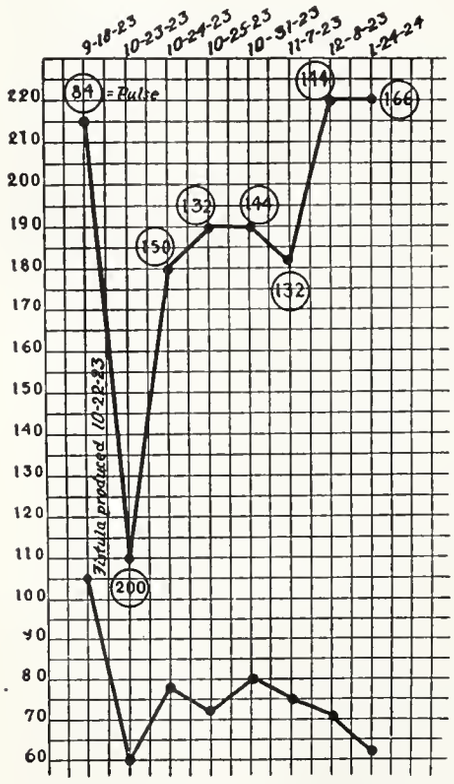

Fig. 1

Fig. 1.—Blood pressure and pulse readings illustrating (1) the great fall in pressure and increase in pulse rate immediately after the formation of an iliac fistula; (2) the gradual recovery in systolic pressure, but with a permanent reduction in diastolic pressure and a prolonged increase in pulse rate.

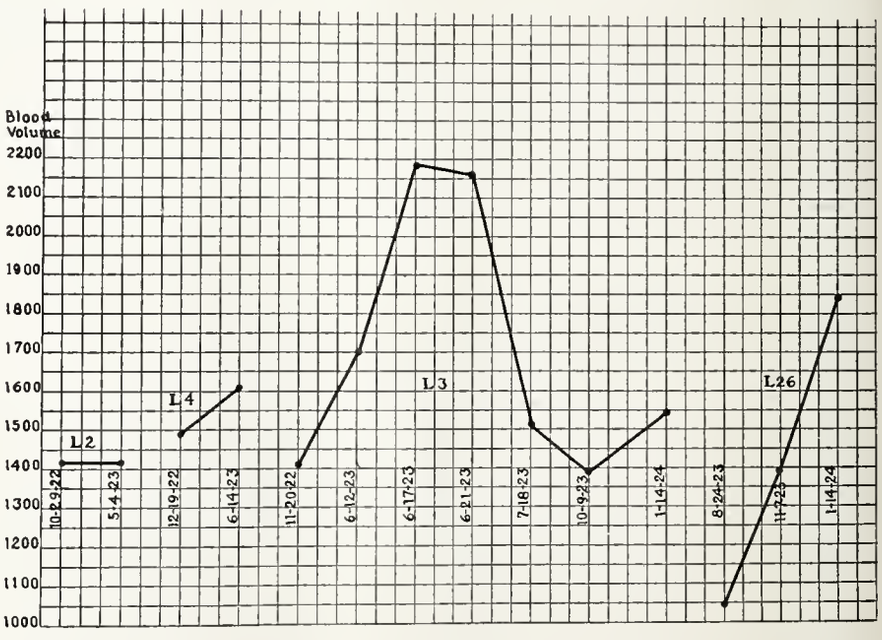

Fig. 2

Fig. 2.—Blood volume determinations: (a) constant blood volume in L2, with a small fistula that healed spontaneously; (b) slight increase in L4, with a small fistula; (c) marked increase in L3, with a larger femoral fistula followed by subsidence of this increase after excision of the fistula; (d) marked increase in L26, with a large iliac fistula.

crease in total blood volume was definitely commensurate with the size of the fistula.

Experiment IV

In dog L2, weighing 13.2 kg., a small femoral fistula 6 mm. long was made, between the right femoral artery and vein, 4 and 5 mm. in diameter. No changes were ever noted in either the pulse rate or the blood pressure on closing the fistula, and the necropsy, made June 13, 1923, revealed no change in the size of the heart nor any dilatation of the proximal vessels. The preoperative blood volume on October 29 was found to be 1420 cc. On May 4, five months after the formation of the fistula, a blood volume determination of 1410 cc. was recorded.

Experiment V

In dog L4, weighing 14.6 kg., a small fistula 6 mm. long was made, between the right femoral vessels, 3 mm. and 4 mm. in diameter. Only very slight changes in blood pressure and pulse were noted on opening and closing the fistula, and these were of a very transitory nature. At necropsy, four months after the production of the fistula, the heart showed a slight dilatation of the right half, there was slight visible dilatation of the proximal vein and a suggestive dilatation of the proximal artery not visible or detectable by actual measurement, but brought out by injecting the vessels with sodium iodid and by taking a roentgen-ray photograph. A preoperative blood volume estimation of 1470 cc. was made December 19, 1922, and June 14, 1923, a volume of 1630 cc. was determined, representing a small increase.

COMMENT

With these experimental observations before us there is little difficulty in understanding certain clinical experiences with this lesion. The most striking feature of an arteriovenous fistula, and one which has been little understood, is the dilatation of the heart so frequently though not invariably observed, in association with it. This dilatation of the heart is progressive and may eventually result in cardiac decompensation and death. Clinically an excessively dilated heart has been observed to diminish markedly in size following the elimination of the fistula by operation, and, experimentally, the causal relationship between the cardiac enlargement and the fistula has been definitely proven.

Experiment VI

Dog. L19. An arteriovenous fistula was established between the aorta and vena cava. Within three weeks the heart became greatly enlarged (Fig. 3). The vessels were then separated and their continuity reëstablished. Within three days the heart showed marked regression in size (Fig 3).

COMMENT

In numerous other experiments it has been fully established that this cardiac enlargement is also dependent upon the size of the fistula. Small fistulae result in little or no increase in the cardiac size, whereas large fistulae are invariably followed by marked dilatation and slight hypertrophy of the heart. This dilatation is not confined to the heart, but involves also the artery leading to the fistula and the vein lying both proximally and distally to the fistula. Experimentally the dilatation of the artery has been noted in the presence of a fistula, with regression in the size of the artery following the elimination of the fistula. The explanation for this dilatation of the vessels and heart lies in the distending force exerted by the

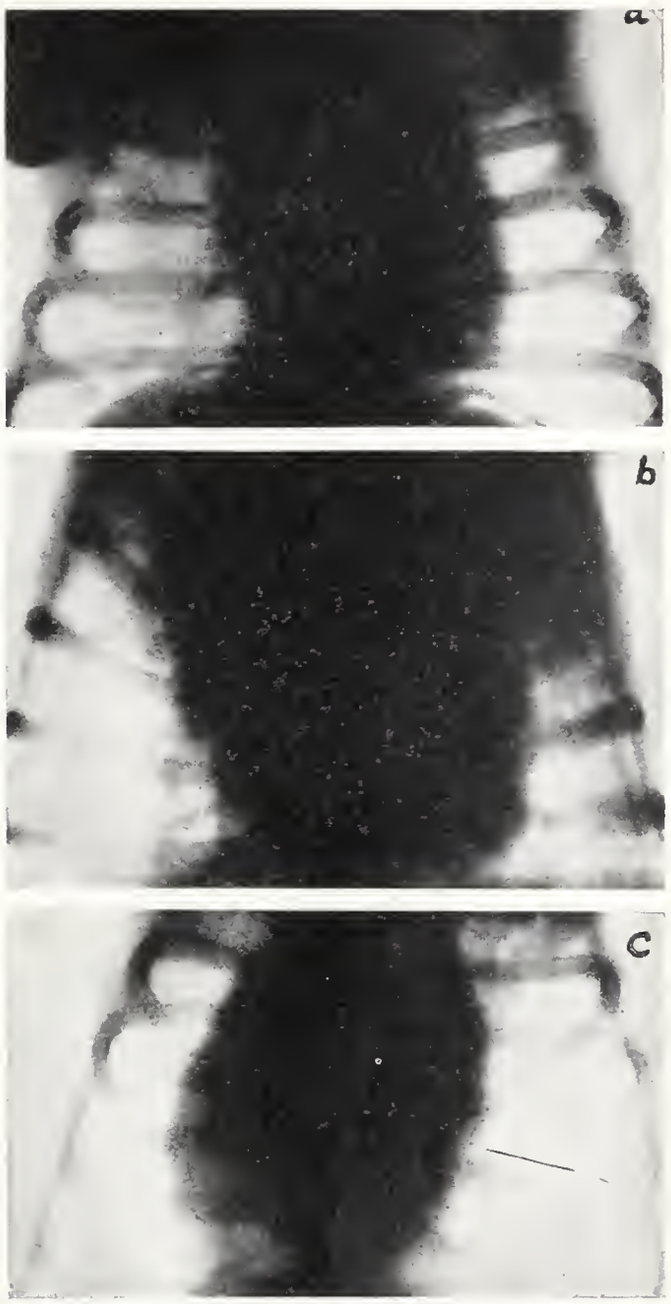

Fig. 3.—Experiment VI. Dog L19. (a) Normal roentgenogram of heart before operation. (b) Three weeks after the establishment of a fistula between the aorta and vena cava. (c) Three days after the repair of the fistula.

greatly increased blood mass which is flowing through these vessels and the heart by way of the fistula.

ADDITIONAL OBSERVATIONS

Additional interesting observations may be made clinically if the location of the lesion permits one to close the opening by digital pressure. Upon compressing the site of a large peripheral fistula and thereby temporarily closing the communication there occurs a sudden elevation in systolic and diastolic blood pressures to remarkably high levels for one or two beats (Fig. 4). If the fistula remains closed these pressures drop again, but remain at levels well above the blood-pressure readings when the fistula is open.

These unique alterations in general blood pressure—unique because in no other lesion in medicine can such sudden and remarkable changes be produced—depend upon the same two physiologic

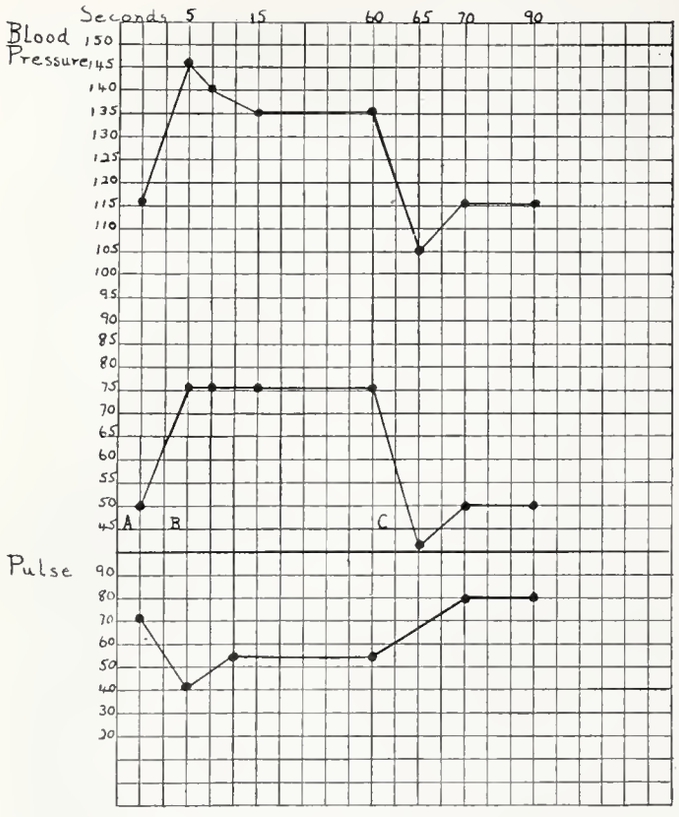

Fig. 4.—Alterations in general blood pressure (left arm) on closing and opening fistula between left superficial femoral vessels, accompanied by marked pulse variations. A, fistula open; B, fistula closed; C, fistula opened.

factors which were so intimately concerned at the inception of the lesion with the fall and subsequent recovery of the general blood pressure. Firstly, the closing of the direct opening between artery and vein forces the circulating blood to pass through the normal capillary bed. This elimination of an area of lowered peripheral resistance causes a prompt elevation in blood pressure. Secondly, the increased total blood volume, which has been commensurate with the increased flow through the shorter circuit, and which has been accommodated in the shorter circuit consisting of heart, artery, fistula and vein, particularly the vena cava, is suddenly retained entirely on the arterial side for several beats with a momentary dilatation both of the heart and artery proximal to the fistula. This momentary dilatation of the heart for two or three beats after digital closure of the fistula has been demonstrated both under the fluoroscope and by roentgenograms. Following elimination of the fistula by operation, a very marked dilatation of the heart above that previously observed has been demonstrated. This overdistention of an already dilated heart persists for several hours and then subsides (Fig. 5).

It may be stated therefore, that the two factors responsible for the momentary excessive increase in blood pressure for one or two beats on closing a fistula are the increase in peripheral resistance and the overfilling of the normal arterial bed by the volume of blood formerly flowing through the fistula. A third important factor in the control of blood pressure is then called into play, namely, cardiac output as determined by the rate of cardiac contraction. We find that immediately following the elevation of the blood pressure by closure of the fistula there ensues for several beats a marked retardation in pulse rate, from eighty to forty beats per minute in one instance, and from seventy-six to thirty-eight in another. This slowing of cardiac contraction results in the prompt lowering of blood pressure by a reduction in total cardiac output. That it is due to a vagal action is apparent from the fact that the slowing of the pulse may be abolished by a thirtieth grain of atropin.

When present these phenomena of increase in blood pressure and retardation of pulse on closing a fistula are pathognomonic of arteriovenous fistulae.

RELATION OF THESE PHENOMENA TO SURGICAL THERAPY

These various physiological phenomena have their direct bearing upon the question of surgical therapy. Although not universally admitted until recent years, it is now well recognized that, in most instances, the peripheral arteriovenous fistula should be eliminated if the patient is to avoid certain local and systemic effects which threaten not only his comfort but also his life. The local effects are dependent upon the arterial pressure in the venous system. This manifests itself in large varicosities, often accompanied by ulcers. A fistula of the subclavian vessels has been complicated by varicose ulcers of the hand and forearm. The main complaint of the patient may center about these lesions. In one instance the presence of a varicose ulcer prompted the house staff to undertake an operation for the removal of varicose veins, and the real lesion, a large femoral arteriovenous fistula, was not discovered until the patient was under ether. Remarkable edema and swelling of an extremity have been observed totally incapacitating the individual. In addition to the local disturbances grave systemic effects may be produced by the cardiac dilatation which follows the large fistula of long duration. Reid [4] has recorded several cases in which death followed cardiac decompensation due directly to a large peripheral fistula.

Granting, therefore, that a fistula should be eliminated from the circulation, the next question is when and how this should be done. Reid has shown that some fistulae tend to heal spontaneously. Holman found that only the small fistulae tended to heal spontaneously, whereas the large fistulae did not. Reid [5] advocates waiting six months following the accidental production of the fistula, to determine whether or not the lesion will heal spontaneously. It may not be necessary to wait this long. If there is early evidence that the heart is dilating and the variations in blood pressure and pulse make an early appearance, one may be certain that the lesion will not heal and must be eliminated by operation to avoid further effect upon the heart.

APPLICATION OF THESE PRINCIPLES IN SURGICAL PROCEDURES

In operating upon this lesion there are certain fundamental principles which must not be violated. To neglect them is to invite almost certain disaster or at the least, failure to cure the lesion.

1. Ligation of the artery alone proximal to the

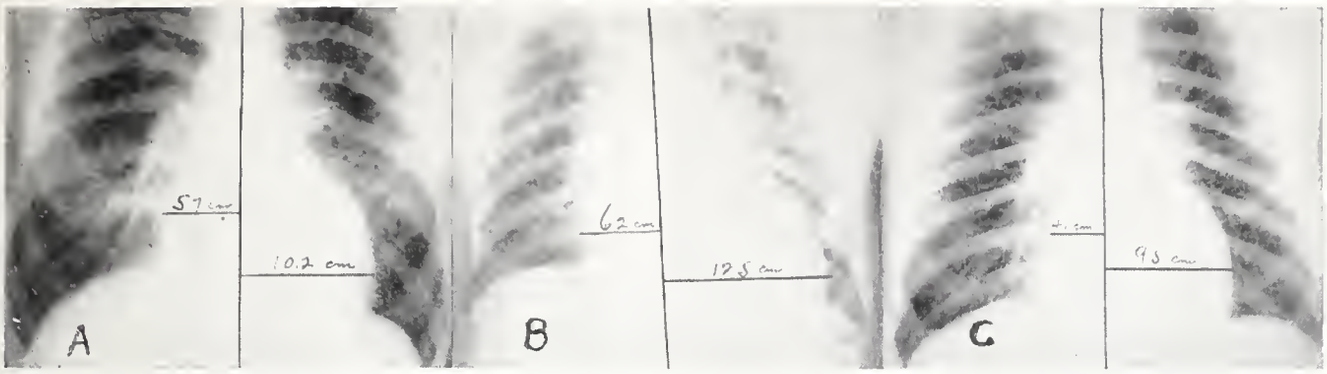

Fig. 5.—Telcoroentgenograms showing: (A) Size of heart in presence of a large fistula between left superficial femoral vessels. (B) Size of heart immediately following operation for the elimination of the fistula. Note marked overdistention of an already dilated heart. (C) Size of heart three months after operation. Note marked reduction in size of heart. Same case as Fig. 4.

fistula is absolutely contraindicated. The accompanying vein must always be occluded. It is obvious that, unless this is done, the collateral circulation (Fig 6) will find its way, not into the capillary bed distal to the fistula, but into the fistula and thence back to the heart. Sir George Makins [6] established this principle following his experiences in the South African War, when it was found that in the treatment of gunshot wounds of the large vessels, ligation of the artery alone invariably led to gangrene of the limb.

When confronted with an aneurysm, therefore, it is most important to make an exact diagnosis by determining whether the lesion is a simple sacculated aneurysm or an arteriovenous fistula. If the latter lesion is overlooked, and the usual treatment for simple aneurysm is applied, namely, proximal ligation of the artery, there is grave danger of gangrene beyond the aneurysm. The distinctive features of a fistula when compared with a true aneurysm are: (*a*) The continuous thrill and bruit intensified during systole. (*b*) The slowing of the pulse and rise in blood pressure on digital closure of the fistula. This sign is not always present in the early days following the establishment of the fistula, and may be absent if the fistula is small. Occasionally it may be detected only by the electrocardiograph. (*c*) The high oxygen content of arterial blood withdrawn from the veins distal to a fistula as compared to venous blood obtained elsewhere. This additional distinguishing feature has been suggested by Pemberton [7] of Rochester.

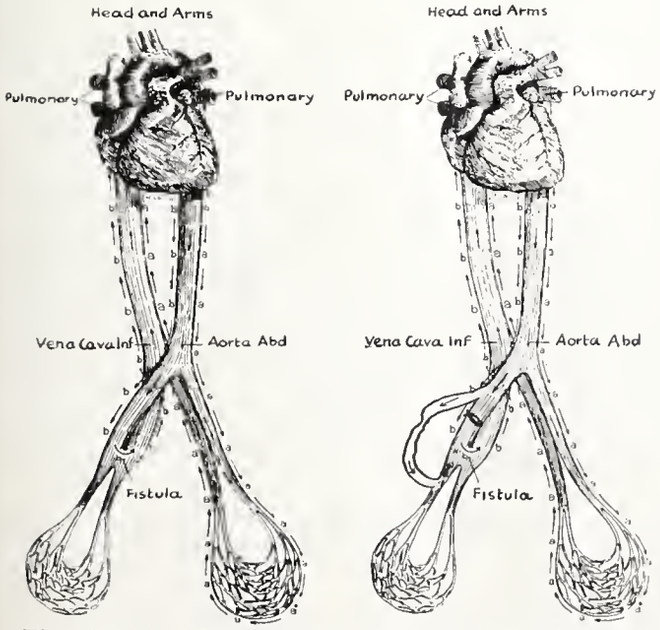

Fig. 6.—(a) Schematic presentation of circulation in presence of a femoral fistula. (b) Ligation of artery proximal to the fistula is absolutely contraindicated because of probable gangrene due to diversion of collateral circulation through fistula directly back to heart.

2. Ligation of the artery and vein proximal to the fistula only is also contraindicated. Even though gangrene may be avoided the fistula is not cured by this operation. Collateral arterial and venous channels open up to keep the lesion active in its capacity of transferring arterial blood into the venous system although probably at a reduced rate.

3. Ligation of the artery and restoration of the vein may lead to gangrene due to the great disproportion between a dilated tortuous venous system and the meager collateral arterial circulation. The little blood that passes through the collateral bed finds its way promptly into the dilated venous bed without passing into the distal arterial bed.

It is generally agreed that the safest and most effective method of dealing with this lesion is quadruple ligation with excision of the fistula. One can then be certain that no collateral channels will open up to restore the local thrill and bruit, nor will there be any grave danger of gangrene.

Matas [8] has elaborated upon his principle of endoaneurysmorrhaphy by advocating restoration of the artery through an opening into the vein. This is occasionally feasible, but in some fistulae of long duration there have been found calcareous deposits in the tissue forming the rim of the fistula, and in the presence of such calcification this procedure would be most inadvisable. The subsequent development of a simple aneurysm at the site of the degenerated arterial wall has been observed.

Large fistulae of long duration are frequently accompanied by evidences of beginning cardiac failure due to an excessive dilatation of the heart, such as tachycardia and dyspnea on slightest exertion. Two of my patients were practically bedridden because of these difficulties. Closure of the fistula by digital compression or by operation may result in an even greater dilatation of the heart with consequently an even greater thinning of an already attenuated cardiac muscle. This additional dilatation may be just sufficient to change an incipient cardiac decompensation to an actual one. This stage may be recognized before operation by noting what occurs when the lesion is closed by digital compression. If instead of a slowing of the pulse and a rise in blood pressure there occurs

a marked tachycardia and an unchanged or lowered blood pressure, it is a good indication that the heart would be temporarily placed under a great strain at the moment the fistula is closed by operation. Cases are on record [9] in which operation has been decided against because of this evidence. Such a decision is denying the patient his only hope of recovery. It has not been my fortune to be confronted with the problem of an incipient cardiac failure due to a fistula, but if I were, I should proceed on the basis that the cardiac decompensation is purely a mechanical one due to the excessive output imposed by the abnormal opening and that operation offered the only hope for complete relief. Bearing in mind the experimentally proven fact that there is an increase in blood volume in the presence of the fistula, and that it is this extra volume of blood which is the immediate cause for the temporarily excessive dilatation that occurs after elimination of the fistula, the rational procedure would be to perform a venesection and remove at least 500 cc. and possibly 1000 cc. of blood during the operation immediately after the fistula had been eliminated. It seems highly probable that with such a precaution the fistula with well-advanced signs of cardiac dilatation could be operated upon without danger of a cardiac breakdown after the operation.

An additional precaution after an operation for the elimination of a large fistula accompanied by a marked dilatation of the heart is a prolonged convalescence with rest in bed. This is necessary to enable a myocardium long dilated and long accustomed to a low diastolic pressure to adjust itself to the altered conditions of a marked increase in diastolic pressure. Not sufficient attention has been paid to the possibility of a myocardial failure due to the burden of the increased diastolic pressure following the repair of the fistula. A premature return to normal or excessive activity must be avoided by imposing a period of enforced rest of at least two or three months. Thomason [10] has recorded an instance in which a return to normal activity immediately after operation resulted in all the signs of a cardiac decompensation. A prolonged rest entirely restored the patient to good health.

SUMMARY

The production of an arteriovenous fistula is accompanied by a marked fall in blood pressure and by an increase in pulse rate. To compensate for these changes an increase in total blood volume occurs.

Dilatation of the heart and of the artery and vein proximal to a fistula invariably occur in the presence of the larger fistulae.

The extent of the blood volume increase and the extent of the dilatation of the heart depend upon the size of the fistula. The dilatation may proceed to complete myocardial failure.

Arteriovenous fistulae should, therefore, be eliminated, preferably by quadruple ligation of artery and vein and excision of the fistula.

The elimination of a fistula may precipitate a cardiac decompensation incident to overdistention of an already dilated heart. To avoid this excessive dilatation, venesection may be necessary in the course of the operation.

A prolonged convalescence after operation is necessary to avoid the myocardial strain which is imposed by the increase in diastolic pressure accompanying the elimination of the fistula.

Stanford University Medical School.

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DISCUSSION

Charles D. Lockwood, M. D. (65 North Madison Avenue, Pasadena).—Doctor Holman's paper presents one of the most interesting physiologic problems in the circulation of the blood, *i. e.*, the response of the heart muscle to an increased load thrown upon it.

If recognized early and operated upon, there is little disturbance of the circulation, and recovery is the rule. The femoral and popliteal arteries and veins are most commonly involved. Bernheim collected fifty-eight cases of femoral arteriovenous aneurysms between 1890 and 1909. There were four deaths and ten cases of gangrene. The deaths and gangrene were in the cases where ligatures of the external iliac and femoral were done without ligation of the vein. Thirty-five cases of popliteal aneurysm gave thirty-four recoveries, one death, six gangrene.

It would seem that simple ligations would give less mortality, but such is not the case. Quadruple ligation in femoral aneurysm has given the best results. The external iliac should be given a wide berth; two deaths followed ligation of this vessel.

In arteriovenous aneurysms of the extremities a collateral circulation is usually established before operation. In arterial aneurysm there is greater danger of disturbing clots and causing emboli. This danger does not exist in arteriovenous aneurysm. About three months should elapse between the time of injury and operation.

Two methods of operation that have given best results are: (1) Quadruple ligation with extirpation of sac. (2) Restoration of continuity by suture. The latter method is ideal, but is more difficult and dangerous.

Moure, a French author, gives four types of arteriovenous aneurysms in his classification:

Type 1. Small communicating channel between

artery and vein. Ligation of the fistula will restore continuity of both artery and vein.

Type 2. Small opening in artery, large tear in the vein, producing a sac at the expense of the vein. In this type the best treatment is obliterative aneurysmorrhaphy, restoring continuity of the artery.

Type 3. Large hole in both vein and artery with two openings into the sac for both artery and vein. This type should be treated by aneurysmorrhaphy.

Type 4. The aneurysm is at the site of arterial bifurcation with two or three arterial openings into the sac. This type is best treated by aneurysmorraphy with closure of the various arterial openings from within the sac.

My own experience in this lesion has been limited to two cases. One case was that of a Mexican boy, age sixteen, who was shot in the inner aspect of his left thigh. He was in shock for a time but recovered, went on about his business and was perfectly all right. Three or four months afterward he had swelling and pain in the left leg which was so distressing that he came to the hospital. There was a large, blowing murmur over the femoral artery, with every evidence of aneurysm. I exposed this, sutured the artery and ligated the vein. He made an uneventful recovery.

Another case was that of a boy who was shot in the popliteal space of the left leg, and the bullet coursed down the anterior aspect of the leg. He developed a large pulsating tumor, with a bruit in the popliteal space. In this case we were able by going well above the vein to ligate the artery.

❦

Edgar L. Gilcreest, M. D. (384 Post Street, San Francisco).—This valuable contribution of Doctor Holman adds much to our present knowledge of the physiologic effects of abnormal communications between arteries and veins. The conclusions which he draws from his experiments are logical and conclusive.

It was my good fortune to have recently a clinical case, a traumatic subclavian arteriovenous aneurysm of eight years' duration which came to operation. The study of this case before and after operation presents important clinical data proving the experimental observations so clearly advanced by Doctor Holman.

The diagnosis of this case was based on the following points:

1. Great swelling of the right chest, right shoulder girdle and entire right arm and hand.
2. Enormous distention of veins in these parts.
3. Cardiac dilatation and hypertrophy.
4. Branham's bradycardiac reaction and associated blood pressure variations.
5. A continuous purring thrill over the distal veins.
6. A continuous bruit, accentuated during systole, over the distal veins.
7. The centrifugal transmission of the thrill and bruit.
8. An increase of the oxygen content in the venous blood distal to the lesion.

At operation the proximal artery and veins, as pointed out by Doctor Holman in his experiments, were found to be dilated, as well as the distal vein. Proximal ligations of artery and veins improved, but did not effect a cure. Subsequent distal ligations of arteries and veins, ten months later, completing the quadruple ligation, effected a complete cure—all of which confirm the conclusions so ably presented by Doctor Holman in this splendid paper. It might be interesting to enumerate the various ligations which were made in this two-stage operation. First operation: Ligation of external and internal jugular, subclavian and innominate veins and the subclavian artery. Second operation: Ligation of axillary vein, subclavian, axillary and long thoracic arteries, making in all a total of nine ligations.

In the treatment of this case, therefore, the principles enunciated by Doctor Holman in this article were carried out with the exception that it was performed in two stages instead of one. I have no hesitancy in stating that I believe by the ligation at the first operation of the proximal vein, in this case the innominate, gangrene of the fingers was prevented.

TORSION OF THE SPERMATIC CORD

By R. P. Roantree, M. D.
Elko, Nevada

Discussion *by W. P. Willard, M. D., San Francisco; Miley B. Wesson, M. D., San Francisco; William E. Stevens, M. D., San Francisco.*

TORSION of the spermatic cord is not extremely rare. Prior to 1920 only one hundred and twenty cases had been recorded in the literature. Since that time twenty-five additional cases have been added, and of these, fifteen have been reported by Campbell [1] from Bellevue Hospital. The writer has seen two cases in the past year in a small town practice.

In writing on this subject de Quervain [2] says: "The only condition with which it could be possibly mistaken is an embolic infarction of the testicle occurring in a patient with heart disease." In apparent contradiction to this statement Young [3] writes: "The diagnosis of torsion of the cord is often missed." This discrepancy between two authorities can only be explained either by the fact that the condition is not known or because its frequency is not realized.

Torsion of the spermatic cord, as its name implies, is an axial rotation of all the cord structures and the testicle with a resulting impairment or total loss of blood supply beyond the point of torsion. An obstruction to the venous return results, with infarct formation in the testicle and in the cord distal to this occlusion. The twist may occur either within or outside of the tunica vaginalis.

Torsions occurring in the extravaginal portion are extremely rare because all the connections between the external surface of the tunica vaginalis and the tissue surrounding it must be broken. It is interesting to note in this connection that in certain countries this method of castration of lower animals has been used under the name of "bistournage." The operator of "bistourneur" manipulates the testicle, breaking loose its connections, and rotates it to produce an artificial torsion which is followed by gangrene.

Intravaginal torsion of the cord is much more frequent than extravaginal. As a rule the torsion occurs immediately above the testicle. In the normally developed individual the testis and the epididymis are closely attached to each other and the epididymis is attached to the scrotal parietes over at least four-fifths of its length. This makes intravaginal torsion impossible in the normal individual. Torsion is only possible when the connection between the testis and the epididymis, or epididymis and scrotum are extremely loose and mobile. In one of our patients the testicle hung from a pedicle one inch long and one-fourth inch in diameter. Torsion is about as frequent in the scrotal as in undescended testicles. The percentage of cryptorchids in the general population is very low, hence the percentage of torsion occurring in imperfectly descended testicles must be higher than in scrotal testicles.

Sudden cremasteric contraction has been emphasized as the immediate cause of torsion. This must be considered since the onset of some torsions occurs during sleep. The usual history is

that the torsion followed violent muscular effort with straining or injury to the scrotum.

Torsion may occur at any age. It has been observed in infants and in old age, but is most frequent in early adult life.

SYMPTOMS AND SIGNS

The onset of torsion of the cord is always sudden. Severe pain is a constant accompaniment and may be localized in the affected side of the scrotum, or referred to the abdomen and accompanied by temporary obstruction to the passage of motions and flatus, and even by prostration. In simple torsion the temperature is rarely above 100 degrees Fahrenheit, but may reach 104 degrees Fahrenheit. The scrotum swells rapidly and is so extremely tender that it is impossible to differentiate the epididymis from the testis. The swelling is at first confined to the testicle, but later the scrotal tissues become edematous and the skin somewhat discolored. This discoloration of the skin may extend well past the midline. Indications of fluid within the tunica vaginalis may be found. The opposite testicle may give evidence of abnormal motility. In one case rhythmical contraction and relaxation of the cremasteric was noted thirty hours after the onset of the condition. The rate was thirty per minute, and it continued throughout the entire examination. This was not noted at other examinations.

DIFFERENTIAL DIAGNOSIS

In the differential diagnosis the position of the testicle has to be taken into consideration. The presence of classical symptoms in a descended testicle with no history of direct injury must be either an epididymitis or torsion of the spermatic cord. The onset of epididymitis is more gradual, and the finding of a prostatic or urethral discharge containing pus should suffice for the diagnosis. With a history of direct injury, traumatic hematocele must be considered. The before mentioned findings will differentiate between torsion of the cord and epididymitis; but it must not be forgotten that epididymitis can occur after an injury. In traumatic hematocele the onset is more gradual than in torsion and more rapid than in epididymitis. The pain increases in severity with the increase in the size of the scrotum. The scrotum is as a rule much larger, and often an ecchymotic area may be found on the posterior surface.

When the testicle is in the inguinal canal, acute hydrocele, neoplasm, appendicitis, strangulated hernia, and torsion of the spermatic cord are to be considered. Acute hydrocele is usually easily ruled out, as it is a tense, well-defined swelling that does not enter the inguinal canal. It occurs only in infants and is not accompanied by distention, retention of flatus, or vomiting. It transmits light, and a needle will verify the diagnosis.

A neoplasm may give rise to similar symptoms and should be considered, that the surgeon may be prepared for a complete removal of the involved tissues.

When the condition arises upon the right side appendicitis may be simulated. Appendices, especially in children, have been found within hernial sacs. The onset of appendicitis is usually slower, with vomiting following some time after the onset of pain. Vomiting is more prolonged and there may be no retention of flatus or feces. The pulse as a rule is more rapid and leukocytes are increased in appendicitis.

The diagnosis between torsion and strangulated hernia is at times impossible. Most undescended testes are accompanied by hernia, and the history of a previous hernia may be an aid. As a rule retention of flatus and feces is not so marked in torsion and passes off after a short time. However, immediate operation is indicated to save the involved structure whether it be testicle, appendix, or intestine.

Attempts have been made to relieve this condition manually by untwisting the cord. This technique has been successful in a few cases, but is unsatisfactory since the direction of the primary twist cannot be previously demonstrated. Atrophy occurs in testes which are not relieved within one hour after torsion, and gangrene begins within forty-eight hours. Operation will save many testes if done early, but they will probably often atrophy. In cases where a long pedicle on an involved scrotally contained testicle is found, the opposite side should be examined for abnormal motility of the testicle. Should the other testicle give evidence of a long gubernaculum, it also should be fixed to the bottom of the scrotum as several instances of bilateral occurrence have been reported.

If the testicle is viable the tunica vaginalis should be inverted to prevent hydrocele, and the testicle sutured to the bottom of the scrotum to prevent recurrence. If gangrene has supervened, as evidenced by lack of bleeding, a black discoloration and bulging of a black clot on incision of the visceral tunica vaginalis, orchidectomy must be done.

209 First National Bank Building.

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DISCUSSION

W. P. Willard, M. D. (384 Post Street, San Francisco).—Doctor Roantree has, through his paper brought to our attention a condition that should be kept in mind by every industrial surgeon. For it is among men doing heavy work that the condition is most apt to appear. Doctor Roantree has within a few months seen two cases in the course of his general surgical work. I have seen but one case in over twenty years of urological work.

Miley B. Wesson, M. D. (1275 Flood Building, San Francisco).—Torsion of the testicle occurs rather infrequently but, like Doctor Roantree, we are beginning to wonder if its rarity is not more apparent than real, the condition not being recognized either before or after operation for "gangrene of the testicle."

The predisposing cause of torsion is an undue mobility of the testicle and it is commonly associated with incomplete descent of this organ into the scrotum, at least to the extent of an unusual length of gubernaculum. The first report of a case of torsion was by Delasiuave in 1840. Operation was done for a supposedly strangulated hernia and torsion of an inguinal testicle found. Then, at intervals, isolated cases have

been reported. Nicoladani in 1885 called attention to the fact that the undescended testicle is more liable to rotation of its pedicle with torsion and subsequent strangulation than the normally descended organs. Scudder in 1901 compiled thirty-two cases of torsion of the pedicle; 47 per cent of these occurring in undescended testicles. In 1927 Ormond reported six cases of torsion of intra-abdominal testicles in three of which the testis was the site of a malignant tumor.

In every case a congenital malformation or anomaly exists, and trauma is a negligible factor. The testicle is not attached properly to the walls of the scrotum, but hangs loosely like a pendulum within the scrotal sac. If the patient makes a lateral motion and then stops suddenly, the heavy testicle, hanging by the vas and not anchored securely to the wall of the scrotum, may rotate too far and even twist three or four times and stay in this position. The superficial veins are obstructed and, since the uninfected arteries continue to pour in blood, the whole testicle soon resembles a blood-clot. Everything below the twist is turned into a hemorrhagic infarct. If the condition is treated conservatively the extravasated blood will absorb and eventually the scrotum will return to normal, but the testis will atrophy. No normal man can possibly have a torsion of the testicle without intentional scrotal manipulation (bistournage) has been carried out, but one with an appropriate congenital defect in his scrotum is liable to have a torsion of the testicle any time he moves whether it be turning over in his sleep, walking fast and then stopping suddenly, or throwing an orange box up on top of a pile, as in the following characteristic case.

A man was stacking orange boxes on end. He had already placed one box on top of the other and as he attempted to throw the third box up he lost his balance, the box falling over his shoulder and throwing him forward; he felt a nauseating pain at the time, which was very severe for twenty-four hours, then gradually subsided. On the evening of the accident his testicle was swollen. Six days later the surgeon diagnosed "gangrene of the testicle due to trauma" and an orchidectomy was done. The pathologist reported "infarct of the testicle."

It is very unfortunate that Doctor Roantree did not report in detail his two cases so that they could be incorporated in the literature of this subject. He has very aptly called attention to the fact that the diagnosis of torsion of the testicle may readily be made by one who is on the lookout for it, and the fact that two cases have been recently observed in one man's practice in a town of less than three thousand bears out this view.

✲

William E. Stevens (608 Flood Building, San Francisco).—It is interesting to note that Doctor Roantree has seen two cases of torsion of the spermatic cord in his general practice. Many urologists have never seen one.

Although there may be a twist of from one-quarter to two or more complete turns the condition rarely, if ever, occurs in the presence of normal testicular attachments. Trauma is not necessarily an etiologic factor, as the condition may occur while the patient is lying in bed. About half of these twists are seen in patients with undescended testicles.

Torsion of the spermatic cord is to be differentiated from acute epididymitis and, if the testicle is undescended, from strangulated hernia. There is less pain but more general disturbance accompanying the latter, and the temperature is not elevated. In the presence of epididymitis the prostate and seminal vesicles are usually involved and pus is found in the urine. The enlarged, tender epididymis can usually be differentiated from the testicle.

If seen very early an attempt to untwist the cord is sometimes successful although atrophy of the testicle usually occurs. Even if in the scrotum atrophy follows conservative treatment. As Doctor Roantree has stated, a gangrenous testicle should be removed.

✲

R. P. Roantree, M. D. (Elko, Nevada).—Abnormal mobility of the testicle is the cause of torsion of the spermatic cord, and is well illustrated in one of my cases. A boy was seen September 11, 1926, complaining of pain and swelling in the right scrotum. The pain began suddenly about 5 p. m., after playing baseball. The patient had taken a hot bath, which caused the pain to become more severe. Examination at 6 p. m. disclosed the right testicle to be two times average size and the structures could not be identified because of tenderness. He was given acetylsalicylic acid, but this would not control the pain and at 7 p. m. he was given morphia, grain one-sixth, subcutaneously. This controlled the pain until 11 p. m., when a second injection of morphia was required. The patient got out of bed the following day and the next day returned to school. The condition caused no further trouble and he did not report at my office as requested.

On March 13, 1927, the same boy was seen complaining of severe pain and swelling in the left scrotum. This attack began forty-five minutes after he had gone to sleep. The pain was very severe and required morphia. The testicle was two times average size, red and exquisitely tender. On March 15, 1927, the testicle was about the same size, the skin more edematous but the pain less severe. A rhythmical contraction and relaxation of the left cremasteric muscle with a rate of thirty per minute was noticed at this time. On March 18, 1927, the scrotum was of the same size, very red and edematous.

Torsion of the right spermatic cord was not diagnosed till after the torsion had relieved itself. When the parents were informed that the condition of the left side was similar to that which had occurred on the right side, consent to operate could not be obtained. They believed that the condition would relieve itself, and this accounts for the infrequent visits and the delay in removing the gangrenous testicle. At operation on March 18, 1927, the left testicle was twisted one and one-half complete turns to the left and was gangrenous distal to the twist in the spermatic cord. The right tunica vaginalis was opened. The testicle hanging from its long thin pedicle resembled a cherry hanging by its stem. The long thin pedicles, which were undoubtedly similar on both sides, accounts for susceptibility to torsion of the spermatic cord. The more severe torsion occurred during sleep when no trauma or muscular action was evident.

COMPARATIVE ANATOMY OF THE BILIARY SYSTEM*

WITH ILLUSTRATIVE DRAWINGS BY SAXTON TEMPLE POPE, M. D.

By Stanley H. Mentzer, M. D.
San Francisco

Discussion *by Wallace I. Terry, M. D., San Francisco.*

EXPLANATORY NOTE

In his extraordinary hunting expedition with the bow and arrow into the heart of Africa, the late Dr. Saxton Pope carried with him also a zeal for medical knowledge that bore unusual fruit.

At the suggestion of Dr. Wallace I. Terry of the University of California, Doctor Pope took the drawings and descriptions of the biliary tracts of animals that I had been able to gather, with him into Africa. The biliary tracts of many animals have not been described, and it was our ambition to add new chapters to such data in the hope that new material might enhance our study of the physiology of the bile tract in the human. Doctor Pope succeeded beyond our fondest expectations, bringing back twenty-six drawings,

* From the Department of Surgery, University of California Medical School, San Francisco.

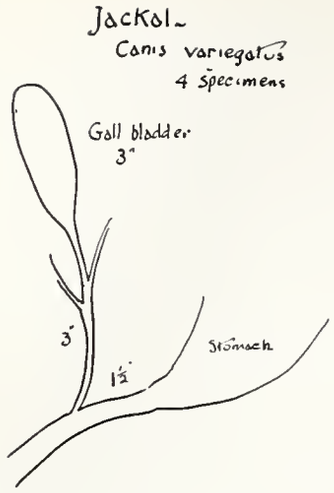


Fig. 1

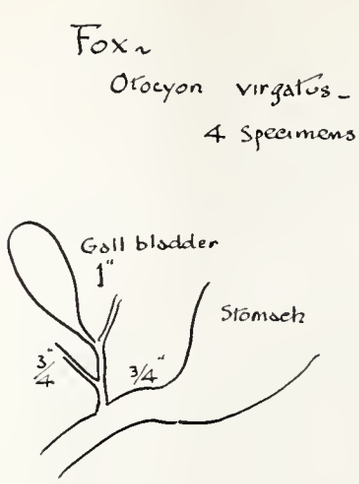


Fig. 2

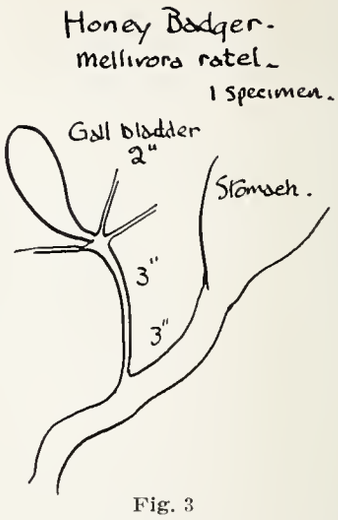


Fig. 3

and one hundred specimens of the gall bladders and ducts of the animals that were slain with the bow and arrow. From the sportsman's point of view alone, his accomplishments were extraordinary; they were equally so from a medical viewpoint because of the original and important contributions that he made.

Through the courtesy of Professor J. Grinnell of the department of vertebrate zoölogy at the University of California, Doctor Pope's specimens have been classified and arranged in their phylogenous groups. The descriptions of these specimens follow the order given by Professor Grinnell.

MAMMALS

ORDER CARNIVORA

Family *Canidae*

Fig. 1. *Thos aureus bea* Heller (jackal of British East Africa closely related to "Canis varicgatus").

The jackal described by Doctor Pope was "Canis variegatus." Four animals of this group were examined by Doctor Pope, and the biliary apparatus found identical in each. The gall bladder was long and rather slender, measuring three inches in length. A true cystic duct, devoid of any leaflets suggesting valves of Heister left the gall bladder in a funnel-shaped manner. It was very short, only three-fourths of an inch and joined the right hepatic duct. The left hepatic duct entered the common duct thus formed to make the choledochus, which measured three inches in length. The latter entered the duodenum one and and one-half inches from the pylorus.

Fig. 2. *Otocyon virgatus* Miller ("fox" of British East Africa).

Four specimens of this animal were described. The gall bladder was small, measuring one inch in length. The cystic duct was very short and smooth-walled. A single right hepatic duct joined the cystic at a rather sharp angle and, a half-inch away, the left hepatic duct entered this common duct. The true common duct thus formed measured less than half an inch in length and emptied into the duodenum three-fourths of an inch from the pylorus.

Family *Mustelidae*

Fig. 3. *Mellivora sagulata* Hollister (honey-badger of British East Africa).

One specimen of this animal was obtained. The gall bladder was small, measuring two inches, and possessed no true cystic duct. The gall bladder emptied into a dilatation of the common duct at the site of juncture of three radiating hepatic ducts. The choledochus thus formed was very large in diameter and measured three inches in length, emptying into the duodenum three inches from the pylorus.

Family *Viverridae*

Fig. 4. *Crossarchus fasciatus colonus* Heller (mongoose of British East Africa).

Two specimens of this small, rapidly moving and water-loving animal were described, under the name of "macruns" rather than "colonus." This interesting little animal has a small snout and a long tail and, because of its rapidity, attacks poisonous snakes and vermin with

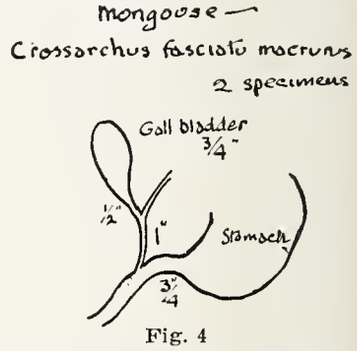


Fig. 4

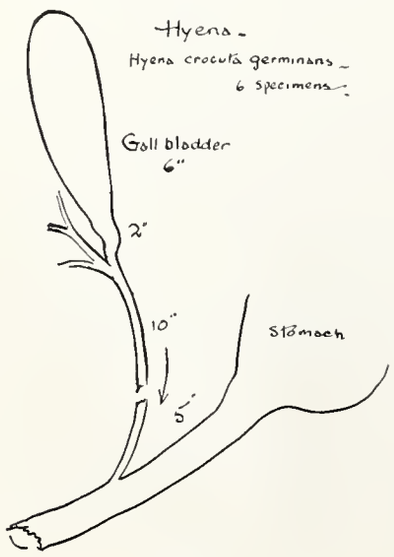


Fig. 5

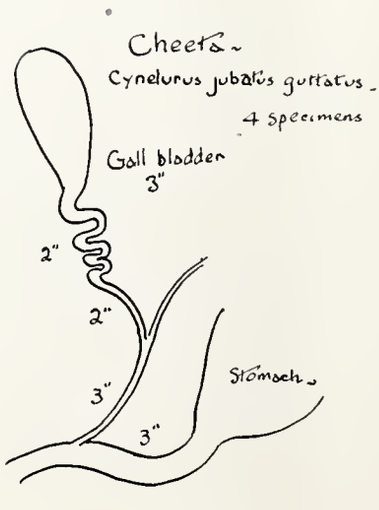
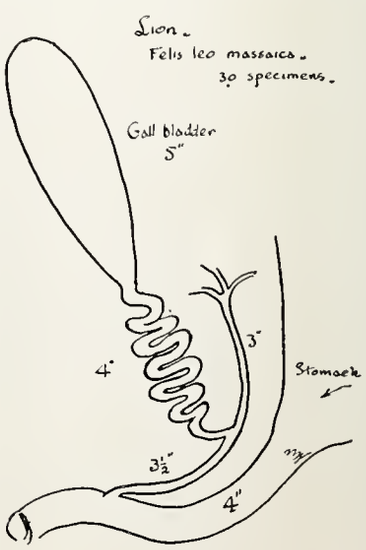


Fig. 6



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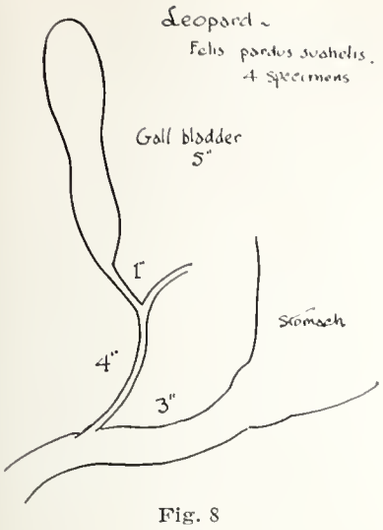

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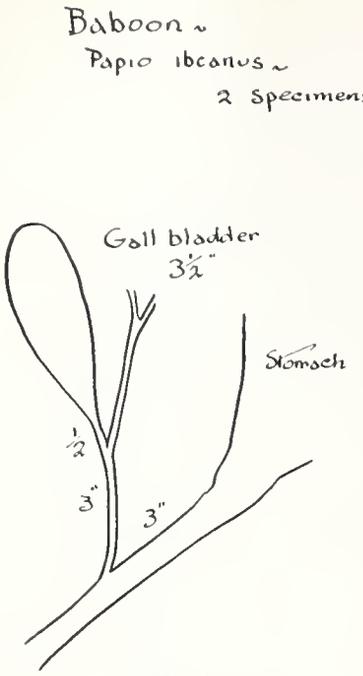

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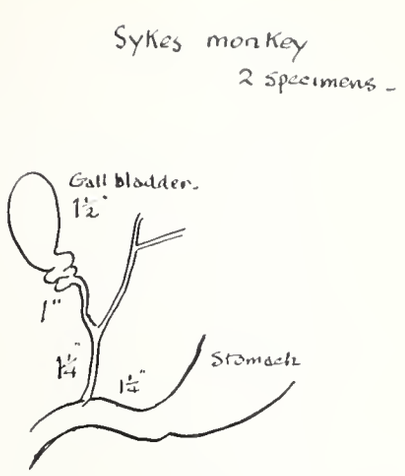


Fig. 10

impunity. For this purpose it is used in parts of India by the natives. The gall bladder is small, measuring three-fourths of an inch in length. The cystic duct is relatively long, one-half an inch. A single, unbranched hepatic duct joins it to form the common duct which empties into the duodenum three-fourths of an inch from the pylorus.

Family *Hyaenidae*

Fig. 5. *Crocuta crocuta germinans* Matschie (spotted hyena of British East Africa).

Doctor Pope killed six of these animals, the biliary tracts of which were identical. The gall bladder was rather large, measuring six inches in length, the cystic duct was kinked (S-curved) and two inches in length. It emptied into a common hepatic duct formed by two branching hepatic ducts. The common duct thus formed was very long, being ten inches in length and emptying into the duodenum five inches from the pylorus.

Family *Felidae*

Fig. 6. *Acinonyx jubata raineyi* Heller (cheeta of British East Africa).

Four specimens of this group were described by Doctor Pope under the name of "Cynelurus jubatus guttatus." Considering the size of the animal, which closely resembles a leopard, it has a small gall bladder, three inches in length. The cystic duct is long, measuring four inches. The distal half, adjacent the gall bladder, is sharply kinked by four U-shaped curves, while the proximal half is straight and enters a single common hepatic duct to form the choledochus three inches from the duodenum, entering the latter three inches from the pylorus.

Fig. 7. *Felis leo massaica* Neumann (lion of British East Africa).

Thirty lions killed by Doctor Pope and his party were reported. The biliary tracts were similar, and none showed any pathological changes. The gall bladder was relatively small for an animal this size, measuring five inches in length. The cystic duct was four inches long and markedly kinked by six U-shaped turns, which comprised its entire length. The cystic duct emptied into a long common hepatic duct formed by the junction of three branched hepatic ducts. The common duct thus formed was three and a half inches in length and emptied into the duodenum four inches from the pylorus.

Fig. 8. *Felis pardus suahelica* Neumann (leopard of British East Africa).

Four leopards are described. The gall bladders are long (five inches) and very slender. The cystic duct is straight and measures only one inch in length. It is surprising that there are no curves or kinks similar to those found in the cheeta or lion though this animal belongs in the same family. Neither were there any valvular projections in the cystic duct which have compensated for the absence of such kinks. The short cystic duct joined an hepatic duct to form the choledochus which measured four inches in length. The latter emptied into the duodenum three inches from the pylorus.

ORDER PRIMATES

Family *Lasiopygidae*

Fig. 9. *Papio lestes* Heller (*i. e.*, "Papio ibeanus," one of the baboons of British East Africa.

The two baboons described by Doctor Pope were relatively large yet both had small gall bladders, measuring three and a half inches in length. The cystic duct was short, only half an inch, and straight. It joined a rather long common hepatic duct formed by the union of two hepatic ducts. The common duct measured three inches in length and entered the duodenum three inches from the pylorus.

Fig. 10. *Lasiopyga albogularis kima* Heller (one of the "Sykes monkeys" of British East Africa).

Two specimens of this small monkey are described. Although this monkey belongs in the same family as the baboons described above, the biliary ducts differ materially. The cystic duct resembles the cheeta, a carnivorous animal, for the distal half of the cystic duct in this monkey is sharply angulated by a W-shaped curve similar to that found in the cheeta and terminates in a straight tube, similarly, in its proximal half. The form of the cystic duct in the Sykes monkey is the most striking deviation found within family groups in this present study. I have been unable to account for this deviation in terms of physiology because of the similarity in foods and manner of living of these two species within the same family. The gall bladder is relatively small but bulbous. The common duct is short, measuring one and a quarter inches, and empties into the duodenum about an inch and a quarter from the pylorus.

ORDER ARTIODACTYLA

Family *Suidae*

Fig. 11. *Phacochoerus africanus aeliani* Cretzschmar (the common East African wart hog).

One specimen of this wild evil-looking hog with its two protruding tusks was examined. The gall bladder of this single animal "Anthiopicus massaicus" measured two inches in length and terminated in a straight cystic duct one inch long. It joined a common hepatic duct formed by the junction of two branched hepatic ducts to make the choledochus which measured one inch in length and entered the duodenum three-fourths of an inch from the pylorus. This is the only animal in the order *Artiodactyla* whose bile enters the intestine close to the pylorus as in the *Carnivora*. This may be accounted for by the fact that it is the only one of the *Artiodactyla* that is carnivorous.

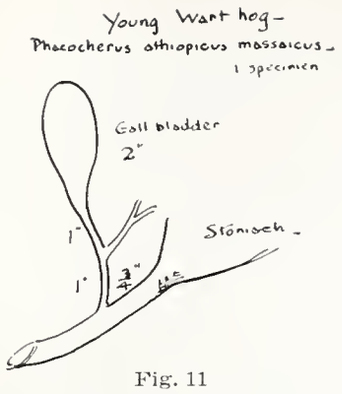


Fig. 11

Family *Bovidae*

Fig. 12. *Syncerus caffer radcliffei* Thomas (common buffalo of British East Africa).

Two specimens of this large and very savage animal were killed. Webster states it is one of the most dangerous animals in Africa. The biliary tract resembles that of the common domestic cow. The gall bladder is large, measuring ten inches in length. The cystic duct is straight and four inches in length. It joins a many-branched right and left hepatic duct at a common site to form a very thick and short choledochus two inches in length. The latter enters the intestine thirty-two inches from the pylorus, the same average distance from the pylorus as in the domestic cow. The buffalo, though savage when angered, is of course herbivorous, and belongs in the same group of *Bovidae* with cattle, sheep, and goats.

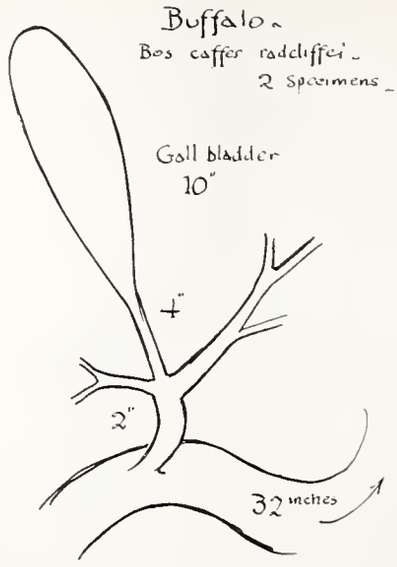


Fig. 12

Fig. 13. *Alcelaphus cokii kongoni* Heller (one of the East African subspecies of hartebeest).

Six specimens of this large antelope, described as "Bubalis cokei" by Doctor Pope, were killed. This species formerly inhabited almost all of Africa, but is now almost extinct (Webster). The gall bladder measured five inches in length, the cystic duct four. The latter was straight and joined a common hepatic duct at a right angle to form the choledochus. The latter averaged seven inches in length and entered the intestine eighteen inches from the pylorus.

Fig. 14. *Damaliscus jimela* Matschie (the topi of East Africa).

Five specimens of this large antelope were secured. The gall bladder was long and slender, measuring five inches in length and terminating in a wide funnel-shaped cystic duct three inches long. Branched right and left hepatic ducts joined the cystic at the same site, and the three ducts thus joined formed the choledochus which measured four inches in length. The latter entered the intestine sixteen inches from the pylorus.

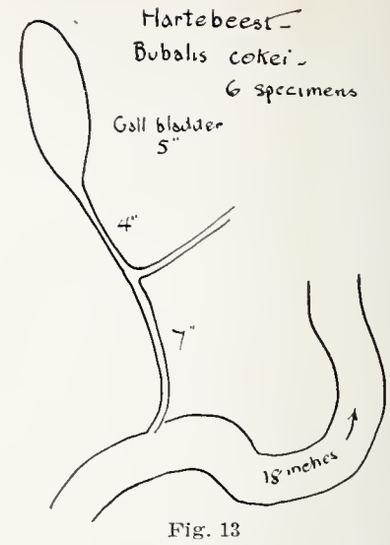


Fig. 13

Fig. 15. *Connochaetes albojubatus mearnsi* Heller (one of the East African races of wildebeest).

Eight specimens of this rather large antelope were obtained. The gall bladder measured six inches in length and terminated in a short (two inches) and almost straight cystic duct. The latter entered a bulbous common hepatic duct to form a very wide choledochus six inches in length. The latter entered the intestine eighteen inches from the pylorus.

Fig. 16. *Raphicerus campestris neumanni* Matschie (the steinbok of East Africa).

This small antelope possessed an unusually small gall bladder in both specimens secured, measuring only two inches in length. The cystic duct was slender, one and a quarter inches in length and comma-shaped. It joined a short common hepatic duct to form a four-inch choledochus which entered the duodenum at a sharp angle five inches from the pylorus.

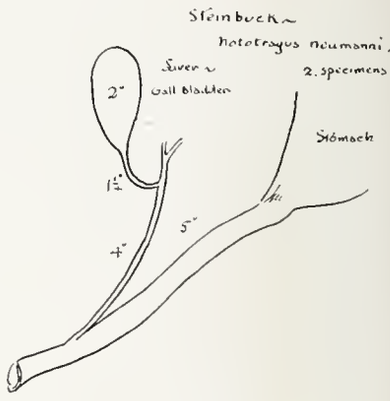
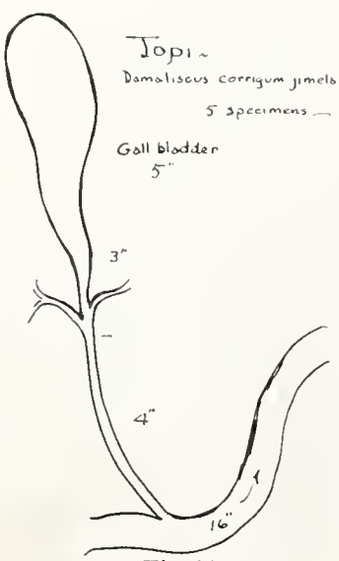


Fig. 16

Fig. 17. *Rhynchotragus kirkii cavendishi* Thomas (a race of "dik-dik" from British East Africa).

Two specimens of this small antelope had gall bladders measuring two inches in length with a rather



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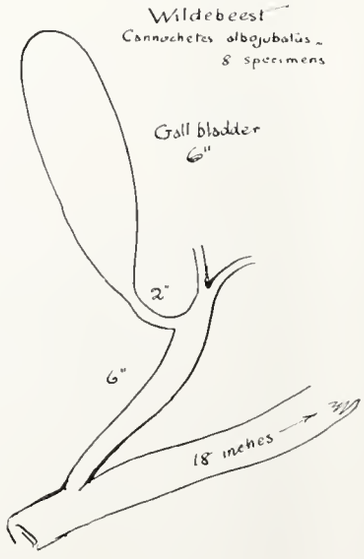

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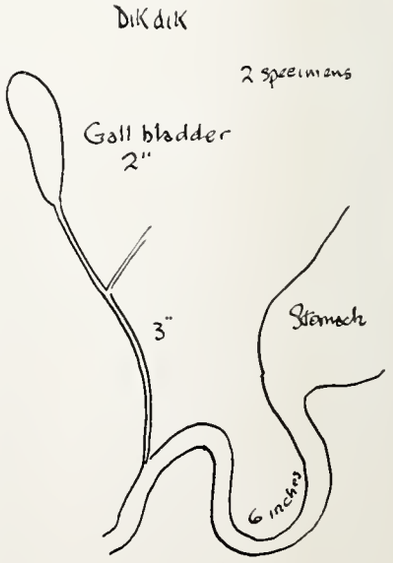

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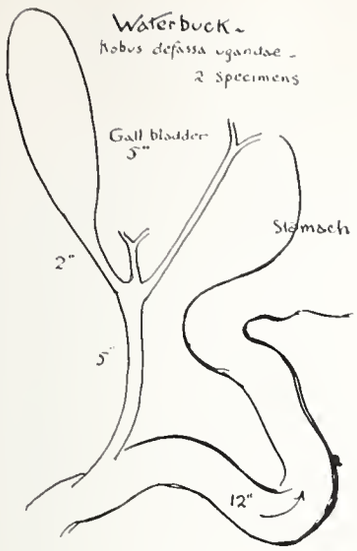

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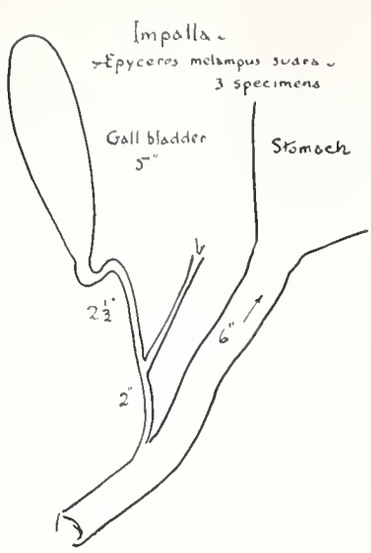

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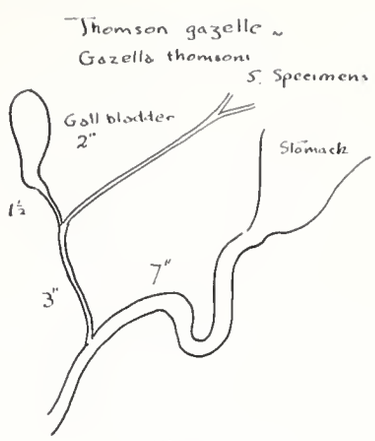


Fig. 20

long, slender cystic duct which joined a single hepatic duct to form the choledochus. The latter measured three inches in length and entered the intestine six inches from the pylorus.

Fig. 18. *Kobus defassa nzoiae* Matschie (a race of water buck from British East Africa).

Doctor Pope described this animal under the name of "defassa ugandae" in the two specimens that he secured. This antelope had a fairly large gall bladder which measured five inches in length. The cystic duct was straight and two inches in length. It joined two branching hepatic ducts at a common site to form a large choledochus five inches in length. The latter emptied into the intestine twelve inches from the pylorus.

Fig. 19. *Aepyceros melampus suara* Matschie (impalla of British East Africa).

Three specimens of this large antelope, the male of which has ringed horns, were secured. The gall bladder was rather long and slender, measuring five inches in length. The cystic duct was rather bluntly kinked in a Z-shaped manner at its distal end near the gall bladder but straight in the remaining two inches of its length. A common hepatic duct joined it to form a short choledochus two inches in length. The latter entered the duodenum six inches from the pylorus.

Fig. 20. *Gazella granti robertsi* Thomas (one of the gazelles of British East Africa).

Five specimens of Thomas' (Thomson's) gazelle were secured. The gall bladder was small, measuring two inches in length. The cystic duct was slightly curved and one and a half inches long. It joined a long, slender common hepatic duct to form the choledochus three inches in length which latter emptied into the intestine seven inches from the pylorus.

Fig. 21. *Gazella robertsi* Grant.

Four specimens of Grant's gazelle were obtained, and though these two animals belong in the same group, their biliary apparatus differs considerably. The gall bladder in all four of the Grant's gazelles was more or less bilobed. The cystic duct was long, measuring four inches, while the gall bladder was but three inches. A rather short common hepatic duct joined the cystic to form a choledochus three inches in length, but the latter emptied into the intestine sixteen inches from the pylorus, whereas in Thomson's gazelle it emptied seven inches away. Grant's gazelle is somewhat larger than Thomson's, but scarcely enough to account for this difference in measurements.

Fig. 22. *Taurotragus oryx pattersonianus* Lydekker (the eland of British East Africa).

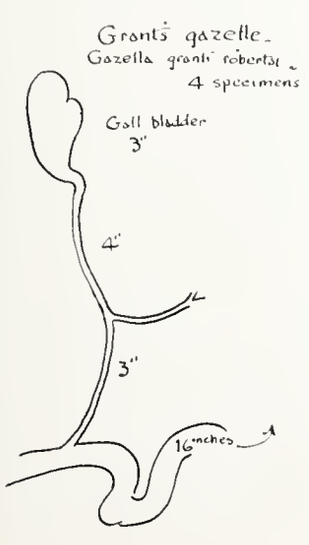
Three specimens of this largest of the African antelopes were secured. The males stand six feet in height and sometimes weigh over sixteen hundred pounds. This species has been almost exterminated. The gall bladders measured eight inches in length and terminated in a short, two-inch cystic duct. The latter joined a long, common hepatic duct to form a short, three-inch choledochus which entered the intestine at a sharp angle sixteen inches from the pylorus.

ORDER PERISSODACTYLA

Family *Equidae*

Fig. 23. *Equus quagga granti* de Winton (the common zebra of British East Africa).

Doctor Pope described six specimens of this zebra under the name of "burchelli" grantii. As in the horse, ass, mule, alpaca, guanaco, and others of this tribe, the zebra normally does not possess a gall bladder. The duodenum is adherent to the undersurface of the liver, and bile enters the duodenum directly through a large, many-branched common hepatic duct six inches long. The ampulla is six inches from the pylorus.



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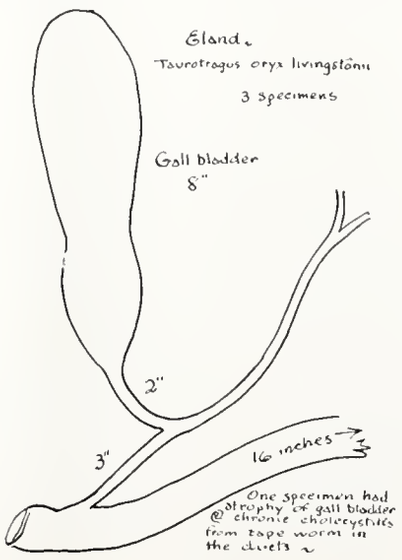

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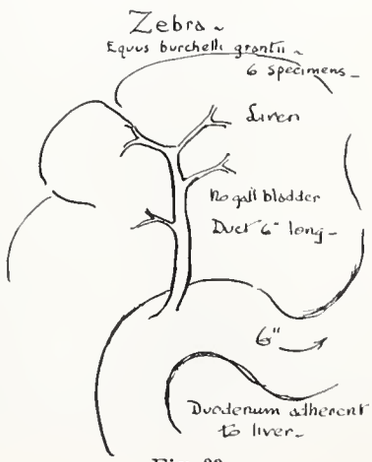

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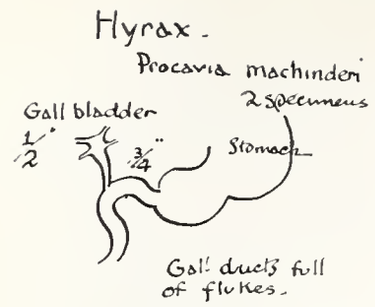

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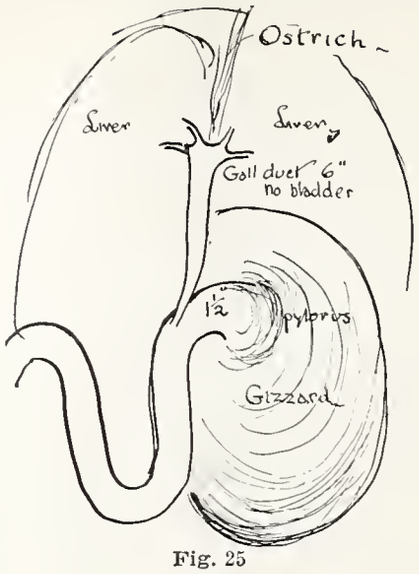

Fig. 25

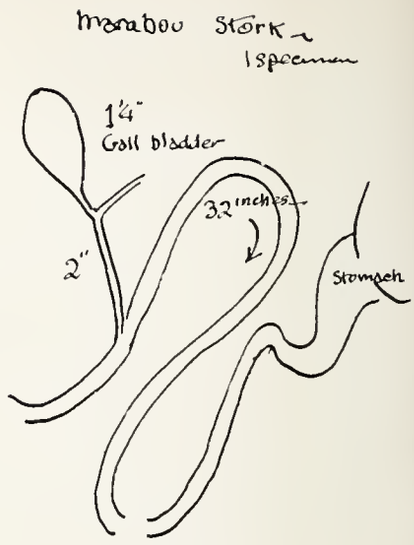

Fig. 26

ORDER HYRACOIDEA

Family *Procaviidae*

Fig. 24. *Procavia macknideri zelotes* Osgood (the common hyrax of East Africa).

Two specimens of this small, timid rock rabbit were secured. This little animal is thick-set, with short legs, and possesses a peculiar prominent gland on the back whose function is not known. In one of the two specimens secured by Doctor Pope the bile ducts were filled with liver flukes.

The hyrax, as reported by Owen, Macalister, and others, possesses a single gall bladder with two lateral pouches and a single cystic duct. The hyrax described by Doctor Pope possessed a gall bladder which seemed to represent a simple dilatation of the common hepatic duct at the juncture of its four hepatic ducts, a dilatation measuring one-half an inch in diameter. From this dilatation a single cystic duct emerged, ran a distance of three-fourths of an inch to empty into the duodenum three-fourths of an inch from the pylorus. It is possible that the "lateral pouches" described by other writers were simple hepatic ducts rather than diverticuli of a true gall bladder. The description of the gall bladder in Doctor Pope's two specimens is not clear, however, nor is it possible to interpret his drawing with certainty.

ORDER RATITAE

Family *Struthionidae*

Fig. 5. *Struthio camelus massaicus* Neuman ("Massai ostrich" of East Africa).

The camelus ostrich examined by Doctor Pope lives in northeastern Africa, and is the largest existing bird known to man (Webster). It attains a height of six to eight feet and often weighs three hundred pounds.

The ostrich does not possess a gall bladder. Four hepatic ducts terminated in a common hepatic duct in the single specimen examined. The common hepatic duct measured six inches in length and emptied into the duodenum very close to the pylorus (one and a half inches). Owen states that another hepatic duct empties into the pancreatic duct and the two enter the duodenum together. Doctor Pope did not find this second hepatic duct.

ORDER CICONIIFORMES

Family *Ciconiidae*

Fig. 26. *Leptoptilos crumeniferus* Lesson (marabou stork).

There are six members of the stork family, the marabou being one of the smallest. One specimen was secured by Doctor Pope. The gall bladder was small, being one and a quarter inches in length. The cystic duct was very short and straight and joined a single hepatic duct to form the choledochus which measured two inches in length. The choledochus emptied its bile into the intestine thirty-two inches from the pylorus.

COMMENT

Doctor Pope's study of the biliary apparatus in various African animals and birds emphasizes three points, it seems to me: (1) The marked variations in the size and shape of the gall bladders in the same and different species; (2) the irregular arrangement of the duct systems; and (3) the great variability in the site of bile entrance into the intestine. The latter point seems to me the most important contribution of this study.

Although the gall bladders of the animals differed in size and shape the variations within the same species were not marked. Halpert noted bilobed gall bladders in the two lions which he examined, but single vesicles alone were found in the thirty specimens dissected by Doctor Pope. Halpert also found the gall bladder almost entirely embedded in the monkey (*Macacus rhesus*), but the gall bladders hung freely suspended from the liver in the two monkeys (Sykes) described by Doctor Pope.

Pathologic changes were found in the gall bladders of two of the animals dissected. The bile ducts in one of the two rock rabbits (Hyrax) were filled with liver flukes, and the gall bladder of one of the three elands showed chronic cholecystitis with atrophy, and a tapeworm in the bile ducts.

The duct arrangements were variable, but did not differ materially from the meager descriptions found in the literature other than those noted in the rock rabbit and ostrich. Doctor Pope gave original descriptions of the curves and kinks found in the cystic duct in the hyena, cheeta, lion, monkey, and impalla. These sharp angulations are similar to some found in the human, but are more marked. No one has satisfactorily accounted for these peculiar "kinks" in the human nor have our studies in comparative anatomy helped us. The hyena, cheeta, and lion are carnivorous, but the monkey is a Primate and the impalla an Artiodactyla, and both of these animals are herbivorous.

In many animals described by Owen, Macalister, and others, there are true hepatic ducts which carry liver bile from the liver to the intestine directly without entering the gall bladder. These hepatic ducts were not found in any of the animals described by Doctor Pope except in those animals normally devoid of a gall bladder.

The notes on the site of bile entrance into the intestine are some of the most interesting data assembled. Mann, Brimhall and Foster, Owen, Macalister, and others have described the varia-

tions in the site of the ampulla in many domestic and a few wild animals. No one, however, has classified these animals, in this relation. When this is done a significant fact becomes evident. In all of the Carnivora described by Doctor Pope the common duct emptied its bile into the duodenum very close to the pylorus, from three-fourths to five inches. In all of the Artiodactyla, with the exception of the wart hog, the ampulla lay a great distance from the pylorus, from six to thirty-two inches. There must be a reason for this great difference in the site of bile entrance into the intestine. If all of the Carnivora have bile entering the intestine close to the pylorus, and all of the Herbivora have bile emptying far away from the pylorus, it would seem that food and digestive requirements must be a factor. This fact is essentially true. It is established in this present study of wild animals, and is substantiated in previous observations in domestic animals. There are a few exceptions to this general rule, but they are satisfactorily accounted for by the habits of these animals.

TABLE 1

Carnivora	Measurements (Inches) Gb.	C. D.	A. P.
Family Canidae			
Jackal	3	3	1.5
Fox	1	.5	.75
Family Mustelidae			
Honey badger	2	3	3
Family Viverridae			
Mongoose	.7	.7	.7
Family Hyaenidae			
Hyena	6	10	5
Family Felidae			
Cheeta	3	3	3
Lion	5	3	4
Leopard	5	4	3
Primates			
Family Lasiopygidae			
Baboon	3	3	3
Monkey	1	1	1.5
Artiodactyla			
Family Suidae			
Wart hog	2	1	.75
Family Bovidae			
Buffalo	10	2	32
Hartebeest	5	7	18
Topi	5	4	16
Wildebeest	6	6	18
Steinbok	2	4	5
Dikdik	2	3	6
Waterbuck	5	5	12
Impalla	5	2	6
Gazelle (Thompson)	2	3	7
Gazelle (Grant)	3	3	16
Eland	8	3	16
Perissodactyla			
Family Equidae			
Zebra	0	0	6
Hyracoidae			
Family Procavidae			
Hyrax	1	.7	.7
Ratitae			
Family Struthionidae			
Ostrich	0	0	1.5
Ciconiiformes			
Family Ciconiidae			
Stork	1	2	32

Other writers have called attention to this possibility in relation to the presence and absence of the gall bladder in various animals (C. H. Mayo, Mann, Sweet, etc.). It is difficult to account for the presence or absence of a gall bladder on this basis, for some animals in the same species have a gall bladder and others have not. The camel, giraffe, and elephant normally possess gall bladders, whereas the two- and three- toed sloth, animals in closely related species, normally are without. This same difficulty, of course, applies to our own supposition that bile enters the intestine close to the pylorus in meat eaters and far away in leaf eaters, and yet the comparison is not quite the same. At least the theory seems plausible, and the facts assembled favor this assumption.

516 Sutter Street.

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DISCUSSION

WALLACE I. TERRY, M. D. (384 Post Street, San Francisco).—Doctor Mentzer has made an important contribution to the comparative anatomy of the gall bladder and bile ducts, and it is to be hoped that he will at some future time assemble all his data on this subject, both as regards man and the lower animals, into book form. The late Doctor Pope possessed a true scientific spirit, and one could always trust the accuracy of his observations. In commenting on his drawings shortly after returning from Africa, he suggested that the very long biliary ducts of the hyena might be necessary to accommodate themselves to a sagging duodenum after eating excessive amounts of food. Both the hyena and the lion gorge themselves whenever they have the opportunity, according to the testimony of many African travelers, and it would seem reasonable to suppose that a great drag on the biliary ducts would be prevented by an excess length of them.

Doctor Mentzer's remarks about the varying distance of the ampulla from the pylorus in the Carnivora and in the Herbivora are of much interest, and his deductions seem to be based on good reasoning.

RHEUMATIC HEART DISEASE IN CHILDREN—ITS TREATMENT*

By WILLIAM W. BELFORD, M. D.
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DISCUSSION *by Lloyd B. Dickey, M. D., San Francisco; J. Marion Read, M. D., San Francisco; Edward S. Babcock, M. D., Sacramento.*

MUCH has been written about rheumatic heart disease. It is not possible to do more than review the outstanding points of the treatment of this disease when it occurs in children. Certain things about rheumatic fever are to be remembered, however, in treating one of its complications—the damaged heart. The organism of the disease has not been proven. We do know there is very close relationship between acute nose and throat infections and the onset of rheumatic fever.

In a group of children having rheumatic fever before the age of ten years, Mackie found 90 per cent had recurrences of the disease. Something

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like 90 per cent of children show signs of myocardial damage to some degree with the first attack of rheumatic fever.

THE MYOCARDIUM

In children, as in adults, the ability of the myocardium to perform its normal function, to maintain an adequate normal circulation, is far more important than the change that may take place in the valves. The exercise and activity of well children is very often at, or close to, their maximum physical capacity, whereas an adult seldom has need to exert himself to this degree. So the normal activity and demands on the heart are considered to be far greater in children than in the adult. Obviously, the need of control of the patient is greater. The picture of acute heart failure or marked decompensation is very similar to that in the adult. There are two striking differences that play a large part in our care and prevention of heart disease in children: first, the acute-heart stage is accompanied by fever; second, difference is the infrequency of the absolute irregularities of the heart rhythm, auricular fibrillation in particular.

PREVENTIVE TREATMENT

In the treatment of rheumatic heart disease there are two phases: one is its prevention, and the other is the care after the heart infection becomes evident. Prevention is a broad field, and is not in these conditions getting the attention which the disease, with its great crippling power, is entitled to receive. When we realize that the vague symptoms of rheumatic fever are often ignored, or all too often not recognized by parents or teachers, and sometimes not by doctors, we can see where prevention plays a part. The ignored growing pains, the aching joint that shows little on examination, and the easy fatigue of apparently well children, all may be the first signs of rheumatic fever. The symptoms when at all marked can hardly be missed, and the mistake is not realized until the heart symptoms appear. This many-sided, many-symptomed disease gets no, or all too little, consideration from many teachers, parents, and doctors. With increased attention to heart disease and its exciting and predisposing causes, a decrease in the number of crippled children and adults should be possible. Such has been true of the fight against tuberculosis.

SPECIAL TREATMENT

Treatment depends on the individual patient. In the acute case, absolute bed rest is to be enforced promptly, and as long as there is any fever. This means, of course, attention to all the possible exertions children may attempt. They should have everything done for them, even though many attempt to do for themselves. Adequate rest and sleep are to be obtained. The precordium is quite often painful, even when the signs of pericarditis are not found. An ice bag over the precordium may give subjective relief, but should be removed if it causes distress. Morphin and codein can be used safely, but one should use enough to provide relief. The sedatives, such as bromids, chloral, and various others of similar nature, may be used to induce sleep. The diet in this acute stage should be liquid, of course—milk and fruit juices. Cereals may be added in less severe stages. Careful attention is given to bowel action, so that no exertion with the evacuation becomes necessary. These patients often assume queer positions in bed to provide the most comfort, even though such positions may hamper circulation. They have a severely inflamed heart muscle. The absolute rest for the acute poliomyelitis patients is rather generally recognized. To obtain such, the orthopedist puts his patients in rigid casts, and regardless of pain or pleading keeps the casts on the patients. We could well use some sort of a cast to great benefit in these heart patients, for the need of rest is just as great. The heart muscle has no more recovery power than nervous tissue. The narcotics and sedatives are used to quiet the pain and provide rest. The careful nursing attention is for the same purpose. The light diet is aimed to bring about a minimum gastro-intestinal exertion and resultant demand on the circulation.

Rheumatic heart disease is not amenable to drugs, although in the acute stage, drugs help to control acute symptoms. Digitalis is contraindicated in the presence of fever. It is needed very infrequently, and is limited to cases of decompensation that come without fever, and to a few cases of auricular fibrillation. Regardless of the heart rate, digitalis will not cause a slowing of pulse rate in these cases. The heart muscle is damaged, and the damaged muscle is not able to deliver its quota of work. The normal muscle that is left is working beyond its capacity, and to add to this load is most unwise. Digitalis does add to this load, hence the contraindication. When given, though, one should give adequate dosage, for these children usually need about 50 per cent more than an adult, pound for pound. When narcotics are used, one should give a dose large enough to show results, and sometimes this, too, is much larger than one may think. Mouth medication is preferred, and can be used in all children except those with the most marked decompensation. The added pain and fright often associated with hypodermic medication is always to be remembered. The morphin and codein are given to relieve pain, to ease off the distress and anguish of the severe dyspnea, to dull the mental processes so that the patient has need of no more cardiac action than is necessary to carry on life. The pain and distress and work of breathing, such as these patients have, all add to the already overworked heart. The effort should be to step in and try to break this vicious circle by producing as much rest—cardiac rest—as is possible. The salicylates provide symptomatic relief for the arthritis, and cause a reduction of temperature, but have no specific action on the diseased heart. There may be no fever in these heart patients when the salicylates are used constantly; so there should be ten days or two weeks without medication before considering these cases afebrile.

IMPORTANCE OF REST

Sometimes these cases have fever, a leukocytosis, and all the signs of infection, for many

weeks or months. It is most imperative to keep such patients at complete rest, and to cause as little exertion as possible, for the process is yet active, and probably progressing in the myocardium. Complete rest is to be continued as long as there is any disease activity. The inflamed heart muscle needs its cast, if one may speak of rest in such manner, for that is exactly the reason rest plays such a large part in the care of these children.

As soon as food can be increased, it is wise to give generous and as complete a diet as is possible. Everything is to be done to increase the body nutrition and overcome the anemia that is ever present. If a patient can be made to gain weight steadily, it is permissible to feel that the infection is being combated successfully. The loss in weight nearly always means poor resistance or progressing infection. The nursing care is intended to provide the best possible hygiene. These patients do strikingly well in fresh air and out of doors on protected porches, even in moderately cold weather. The necessity of preventing more infection by undue exposure is obvious.

There comes a time when the fever passes, and the pulse begins to approach normal, and the respiratory rate is normal. Then the convalescent care may begin. As soon as the acute phase has passed, the various foci of infection should be removed. It is wise to be sure that the patient is recovering before the removal of tonsils and adenoids is advised, or before teeth are extracted, or before sinus treatment begins. At times this is hard to determine.

The one aim of care after the acute break is to build up the body resistance so that no further damage to the heart may take place through either the lighting up of a latent focus or a new infection. The chances of recurrence are great, given as 90 per cent by one observer, and of course each recurrence means more heart damage.

This building up of resistance is done by means of suitable food, sufficient and adequate rest, fresh air, and sunshine. The need of rest continues, and progress of the patient may be expected to be slow, all too often, until we have some sure means of discovering that the infection has passed entirely. Patients have been observed under regular examination to develop the signs of mitral stenosis as long as five years after the acute stage of the heart infection had passed, and with no recognized infection or decompensation in the long interval. In the modern care of tuberculosis, rest is one of the mainstays. No one doubts the meaning of the term nor its value. Exactly the same purpose is to be kept in mind in caring for these convalescent heart cases. No one worries about a year's rest in bed for a tuberculosis patient; and the lung lesion may be rather small. Nor should one be hurried into allowing heart cases to increase their activity. With children it may be necessary to use restraining jackets to keep them quiet in bed, when they feel so well. The time is always well spent in selling the idea of rest to the parents. The growth and development of these children will continue if the food is adequate. They are remarkably adaptable patients to their environment, but the arranging of the environment must not be left entirely to them.

DIET

The diet should be adequate in all the essentials. Anemia is common and often severe, and needs special attention. The diet is to contain adequate protein, which is most essential for body growth. Meat does no harm in these cases. The vitamins in the fresh meats, eggs, fruits, and in the vegetables are most essential. Those found in the best grades of cod-liver oil are desirable, for they play a part in growth stimulation, in calcium metabolism, and in resistance to infection. Cod-liver oil is a food, a part of the normal diet of the well child, and accordingly all the more necessary in the dietary of the sick child especially prone to a chronic infection. The factors in the diet that play the largest part in the overcoming of anemia are the protein, especially those that contain iron, the green leafy vegetables, and adequate vitamins. These rheumatic children will eat remarkably well if the food is made attractive, tasty, and is not always the same. It is really surprising to see these children eat as much as they do when lying absolutely flat on their backs, week in and week out. Sun baths are a great help.

EXERCISE

There are many ways of increasing the activity. Passive motion of the extremities in bed is given when a child is not moving the extremities rather actively himself. As he improves, his toys or books may be given him for increasing intervals each day, when he is lying in bed. In due time he is allowed to sit up in bed, and the time interval increased as the condition of the circulation permits. Then he is out in a chair, later takes a few steps, and gradually increases his range. It is best to keep these children on the level terrain; no steps up or down, as going to the outdoors, or downstairs, unless they are carried. The up and down hill takes extra energy, and means often too much exertion. If the cardiac injury has been great, the myocardium much destroyed, the process of getting up and about again has to be very slow. Why is this? The hypertrophy that is so often a part of the picture comes in response to the demand for more heart work, and is met by the uninjured fibers of the myocardium, and not by the ones damaged by the rheumatic infection. We should take plenty of time in getting these children up, so that the heart may be gradually trained to the load.

FOCAL INFECTIONS

Usually the foci of infection have been attacked before the full amount of activity permissible has been worked out. With each focus removed, a few days or longer in bed are desirable. The tonsils and adenoids are nearly always infected in these cases, and if present should be removed. They are best out, in the interest of protection from further damage. The decision of when to remove the foci is many times difficult, and no

rule applies, for each case has to be judged individually.

REGIMEN AFTER COMPENSATION

Even when compensation is restored, the cardiac reserve determined, and the amount of exercise a patient may undergo decided upon, the physician's care and observation must continue. The work or school life must be observed, that it is not too much of a load. All too often we make mistakes and assign too much liberty of exertion to a patient, and discover, if we are keeping in touch with him, that he is tiring easily, is obviously overdoing, on the amount of exercise that was permitted him. The reason is obvious. Either we were too generous in his allowance, and he did it well until his heart began to labor under the overload, light as it may have been, or a new infection has come upon him. Each new exertion allowed has to be added to the total already in use. The result depends on the cardiac reserve. If it is not too much the signs of failure do not appear. If it is too much, the weariness, fast pulse, the shortness of breath, appear in a short time. Exertion to the extent of fatigue must be avoided. The heart patient must learn to live within his limits, which with good care can be rather wide. The appearance of any infection, such as a cold or a contagious disease, demands absolute rest for some days or weeks longer than would be the case otherwise. New foci of disease must be removed as they may be found, in the course of the periodic examinations. The weight curve often gives considerable warning. It is preferred that these children be ahead of the average weight, certainly gaining steadily, and of the best possible nutrition. A loss in weight often precedes the other signs of more infection. The patient is put to bed until the cause is found, is removed, and the weight curve starts upward again.

SUMMARY

The treatment of heart disease consists of adequate rest—of prolonged and complete rest, as the most important essential. The importance of a well-balanced dietary is considered. Drugs play a very small rôle. The foci of infection are to be removed when conditions permit. The need of prolonged regulation of activity cannot be stressed too much.

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DISCUSSION

Lloyd B. Dickey, M. D. (Stanford University Hospital, San Francisco).—Very little can be added to Doctor Belford's discussion of the treatment of rheumatic heart disease in children, chiefly because he emphasizes prolonged and complete rest, and later the restriction of activity. The factor of rest in children with heart disease is much more important than in adults, because of the factor of growth in the former. While it is more important, this conservative type of therapy is much more difficult to apply successfully in children because there may be lack of coöperation from the patient. Among our clinic patients at Stanford we endeavor to remove the child from the home environment during the period of bed rest. The most ideal place would be in a convalescent home for patients with this type of disease. Here supervision would be in the hands of understanding people, sympathetic, yet not prone to pampering. If the stay of the patient might be prolonged into the period of restricted activity, or of graduated exercise, so much the better. Unfortunately such institutions are not available to the extent desired.

Doctor Belford has rightly stressed the importance of changes in the myocardium rather than changes in the valves, following rheumatic fever. We have not recently analyzed carefully our cases of rheumatic heart disease in children at Stanford Children's Clinic, but the percentage of those showing myocardial damage would probably be about that stated by Doctor Belford. Possibly the incidence of patients showing subsequent valvular disease, following rheumatic fever, would be considerably less than 90 per cent.

We occasionally see children who develop the symptoms of acute chorea following acute rheumatic fever, with or without valvular disease. Almost certainly chorea develops in these patients more frequently when proper rest has not been initiated early in the treatment.

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J. Marion Read, M. D. (490 Post Street, San Francisco).—The focusing of our attention upon rheumatic heart disease in children is commendable, for it is largely a disease of the first two decades. The conjoined campaign of the American Heart Association and the Tuberculosis Association, recently launched in the hope of reducing the high mortality rate from heart disease, is aimed, at the outset, against rheumatic heart disease, since it is undoubtedly of infectious origin although the nature of the invading organism remains a mystery.

Childhood, besides suffering a greater incidence, also suffers more widespread damage with which the power of compensation, still unexpended in youth, seems unable to cope in many cases. The queer positions Doctor Belford refers to are assumed in most instances because of adhesions between the parietal pericardium and the pleura, chest wall, or mediastinum. This fact should drive home the truth that rheumatic heart disease causes a pancarditis and not just endocardial damage. The outcome of any case depends upon the extent of myocardial damage since it is only this structure which can compensate for the valvular insufficiencies. Hence the long period of bed rest and gradual return to activity are well stressed in this paper.

I like Doctor Belford's broad ideas of therapy and diet and agree with him that digitalis is of no avail here. However, I must take exception to the statement that this drug is "contraindicated in the presence of fever" and that it adds to the load on the heart muscle. It should not be given in rheumatic heart disease because the two indications for it—decompensation or auricular fibrillation—are not present. Fever is no contraindication to the exhibition of digitalis if either or both of the two accepted indications are present.

❦

Edward S. Babcock, M. D. (1127 Eleventh Street, Sacramento).—In considering the treatment of rheumatic heart disease, two distinct conditions must be borne in mind. The first is a systemic rheumatic infection of questionable etiology, and the second is a damaged heart. Rest, as so emphatically pointed out in Doctor Belford's paper, is the one important factor as far as the heart is concerned.

The treatment of the rheumatic infection is often most discouraging. Intravenous arsenicals have been tried. Their value is very questionable. I have had no experience with vaccines or convalescent serum. The specificity of the salicylates is a matter of controversy. I routinely put the rheumatic child in bed, force fluids, and give 10 to 15 grains of aspirin every four hours at the very onset of each rheumatic symptom or upper respiratory tract infection, and am certain that many recurrences have been aborted in this way. Acetylsalicylic acid causes less nausea and is probably preferable to sodium salicylate.

It is surprising how well operations on the nose and throat are borne by these children, even though the

cardiac damage is most severe, and I agree heartily with Doctor Belford that the tonsils should always be removed when the acute phase is passed. It is also most important to investigate the paranasal sinuses and teeth. An innocent-appearing tonsil may contain pus in its depths, and an innocent-appearing nose may shelter an infected antrum.

VARICOSE VEINS—THEIR CHEMICAL OBLITERATION*

By John Homer Woolsey, M. D.
AND
Raymund J. Millzner, M. D.
San Francisco

Discussion *by Thomas O. Burger, M. D., San Diego; Horace F. Pierce, M. D., Santa Barbara.*

THE obliteration of varicose veins by the injection of chemical irritants is by no means a new procedure. It is, however, only now beginning to receive the recognition and popularity it deserves. The credit of popularizing the method belongs to the French workers in the field, especially Sicard and Genevrier.

TESTS PRELIMINARY TO TREATMENT

There are three important tests that should be carried out before treatment is instituted.

1. The first, or Trendelenburg test, is to determine if the valves function and the location of the reflow of blood. This test is performed by elevating the leg, emptying the superficial venous system, placing a tourniquet sufficiently tight to compress the internal saphenous vein in the mid-thigh region, and then lowering the leg to see if the veins remain collapsed. If they do remain collapsed, then the reflow comes directly from the internal saphenous vein at its normal junction with the femoral vein in Scarpa's triangle. If, when the tourniquet is still in place, this vein and its tributaries fill, then the reflow is from some other connection with the deep venous system. Such a direct connection occasionally exists between the internal saphenous vein and the femoral vein a short distance above the knee. Consequently, in case of reflow, the test is reapplied with the tourniquet below the point where the internal saphenous vein and femoral vein may join, that is, just above the knee. If necessary the test is then repeated with the tourniquet just below the knee to determine the possible association of the external saphenous vein with the varicosities.

2. The second, or Homan's test, is to determine if the valves of the connecting veins function. This test is performed by elevating the leg, emptying the superficial venous system, and then applying the tourniquet below the level of the junction of the external saphenous vein and the popliteal vein. The leg is lowered and the time necessary for refill noted. If the varicosities fill within forty-five seconds, it indicates that there is a reflow of blood from the deeper venous set through the connecting veins into the superficial venous set.

3. The third, or Mayo test, is to determine the efficiency of the deeper set of veins. This test is carried out by elevating the leg, bandaging from the foot to just above the knee, and having the patient walk briskly about for ten minutes. The bandage should be elastic and applied sufficiently tight to collapse the varicosities. Deficiency of the deep venous circulation is evidenced by the occurrence of cramps in the leg, with or without "pins and needles" sensations in the toes. In case of doubt as to the result of this test, the patient is asked to wear the bandage for twelve to twenty-four hours.

ADVANTAGES OF THE INJECTION METHOD

The injection method has several decided advantages over surgery. It is simple and practically painless. It does not incapacitate the patient from any of his daily duties. It avoids the scars which after operation may seem more disfiguring and annoying to the patient than the varicosities. As a result, many patients who would refuse operation will consent to the treatment, thus saving themselves the loss of efficiency and the discomfort from their varicosities and avoiding the ever present possibility of future ulceration or phlebitis.

The basic principle of the chemical treatment is to damage the intima of the vein wall and thus produce thrombosis. Various solutions have been advised and are employed.

SOLUTIONS USED

Sodium Salicylate Solution.—Sodium salicylate in 20 per cent solution has given us our best results. We inject 5 cubic centimeters at a time. The obliteration following injection has varied from 2 to 25 centimeters, but averages about 10 centimeters. We have had no sloughs of the subcutaneous tissues and only an occasional small skin slough following leakage of this solution at the site of injection. As a rule there is a brief burning pain, which begins near the end of the injection and lasts from one to two minutes. This is sometimes accompanied by very transient cramps of the local leg muscles. Stronger solutions, such as 30 and 40 per cent, have not given better results and have usually caused very severe burning and cramping.

Quinin Urethan Solution.—We also use the quinin dihydrochlorid and urethan solution recommended by Genevrier. This solution contains 0.4 gram quinin dihydrochlorid and 0.2 gram urethan in each 3 cubic centimeters of water. It gives quite extensive thromboses which are, however, often accompanied by a moderately severe perivenous reaction. In several cases the injection of 2 cubic centimeters of this solution into a varicosity near the ankle has given thromboses extending as far as the upper thigh. With this solution there is more danger of skin sloughs or even ulceration following the injection of very superficial varicosities or following even slight perivenous leakage. We confine its use almost entirely to cases that have not responded well to sodium salicylate or to the treatment of very large

* From the Department of Surgery, University of California Medical School.

* Presented at the Nevada State Medical Association Meeting, September 21, 1928.

individual varicosities. The injection of this solution is usually entirely painless.

TECHNIQUE OF INJECTION PROCEDURES

The technique of injection is quite simple. The choice of a dependent or recumbent position of the leg depends on the size of the varicosities. Small varicosities are injected with greater ease with the leg dependent. Larger ones are preferably injected with the leg either recumbent or semirecumbent, since this permits having the vein less distended and also tends to obviate the leakage about the needle which may occur with a greatly distended vein. We prefer a 10 cubic centimeter all glass Luer pattern syringe and a 26 gauge three-fourths to one-inch needle. The 10 cubic centimeter syringe allows loading with 5 cubic centimeters of the solution and yet leaves ample space for drawing back blood in order to prove that the needle is within the lumen of the vein. A tourniquet or digital pressure may be used 10 or 15 centimeters above the site of injection if desired. This pressure is released immediately after completing the injection. The only important part of the technique is to have the needle within the lumen of the vein and to keep it there during the injection. If perivenous leakage is avoided, the results are almost identical regardless of the position of the leg or the method used. After injection a gauze pad is placed over the vein and the injected area supported by an elastic bandage. This is to keep the injected vein collapsed and is left in place about forty-eight hours. We believe this gives a smaller thrombus that will take less time to organize and shrink. Usually the injected vein is felt as a hard, slightly tender cord thirty-six to forty-eight hours after the injection. This cord rapidly becomes nontender and shrinks in size. From two to twelve weeks are required for complete disappearance.

SAFETY OF INJECTION PROCEDURES

The safety of the chemical method of treatment of varicose veins is of great importance. Although theoretically there is some danger of embolism following injection, the practical experience of thousands of injections reported both in this country and in Europe has shown that the method is a safe one. In this connection the microscopic changes occurring in the vein after injection are of considerable importance. We were fortunate in securing, through the coöperation of two of our patients, segments of veins removed at intervals of five minutes to fifty-six days after injection. All had been injected with 20 per cent sodium salicylate solution. Immediately after injection no change is visible. The endothelial cells lining the intima, however, soon swell and become detached from the vein wall. This begins between one and three hours after injection and is complete in twelve to twenty-four hours. This desquamation is promptly followed by the formation of a thrombus. Platelets are deposited on the damaged vein wall and other platelets and leukocytes adhere to them. Fibrin is liberated and forms filaments extending into the lumen of the vein. Red blood cells become entangled in the meshes of this fibrin. New layers of platelets and leukocytes alternate with masses of fibrin and entangled red blood cells until the lumen of the vein is completely filled. These red blood cells soon degenerate into a hyaline-like mass. The thrombosis is complete within twenty-four to thirty-six hours after injection. Invasion of the outer layers of the thrombus by fibroblasts and capillaries begins extremely early and often may be seen beginning adjacent to the vein wall even before thrombosis is complete. Within twenty-four to forty-eight hours after the thrombosis, organization is well advanced. This early organization is quite important because of the solid anchoring of the thrombus. The widespread destruction of the intima results in a thrombus adherent to the vein wall at practically all points, thus affording one of the greatest safeguards against embolism. The capillaries in the organizing thrombus tend to coalesce, giving endothelial-lined blood-containing clefts and resulting, in some instances, in a partial recanalization of the vein. After the first week organization of the thrombus is practically complete and the further course is one of gradual shrinkage. The recanalization may increase and give sufficiently large channels to sometimes require reinjection.

The process of thrombosis following chemical irritation of this type differs from the ordinary type of thrombosis following intimal damage, by the extremely rapid organization and by the attachment of the thrombus to the vein wall at practically all points. These are the two important factors in making the injection method of treating varicose veins a safe procedure.

Since July 1927 we have used the injection treatment of varicose veins as the routine procedure at the surgical clinic of the University of California Medical School. During this period we have treated over one hundred and fifty patients. Our end-results have been uniformly satisfactory. Subjectively most of the patients noted a relief from their symptoms following the first few injections that seemed to us out of proportion to the objective improvement. Where ulcers were present at the beginning of the treatment, healing was quite rapid and the patients were quickly relieved of the associated pain and tenderness.

Recurrences have occurred in approximately 6 per cent of our cases. A few of these represented newly developed varicosities, but the majority were the result of recanalization of previously obliterated veins. Reinjection of these cases resulted again in apparently complete obliteration of the varicosities.

SUMMARY

1. The obliteration of varicose veins by the injection of chemical irritants is a safe and satisfactory procedure.

2. The process of obliteration is a chemically induced aseptic thrombosis following the complete destruction of the intima of the vein.

3. The safety of the method depends in part on the firm anchoring of the thrombus to the vein wall at the site of the widespread intimal destruc-

tion and in part on the early and rapid organization of the thrombus.

4. The solution we use as a routine is 20 per cent sodium salicylate. We reserve the quinin solution of Genevrier for cases in which the sodium salicylate fails to give satisfactory results or for the treatment of very large individual varicosities.

5. The method and the technique of the injection are unimportant if the injection is intravenous and no leakage occurs.

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DISCUSSION

Thomas O. Burger, M. D. (1301 Medico-Dental Building, San Diego). — The popularizing of this method of treating varicose veins is one of our greatest advances in surgery in recent times, and will doubtless do more toward relieving this class of sufferers than any procedure that has been done for many years. There is less discomfort in this method, no loss of time, the avoidance of hospitalization, the avoidance of an anesthetic and of unsightly scars and saving of a great deal in dollars and cents to the individual. All of these factors make it possible for many more people to receive relief who otherwise would go along with their unsightly limbs and the danger of varicose ulcers, and the occasional embolism which does occur in varicose veins in the ambulatory patient. Embolism in individuals who have nothing done is far more frequent than in patients who are operated or treated by this sclerosing method. Embolus is of an infectious nature, and sclerosing is an entirely different condition.

Emphasis should always be placed upon the tests being done which have been outlined in this paper. Be sure absolutely that the veins to be treated, whether by surgery or by the sclerosing solution, are suitable, because treatment should never be given unless deep veins are patent. Deep veins that are not patent only court disaster.

Since this method has become quite common we must warn against gratifying the ladies who have varicose veins, superficial and unsightly, that are so small in lumen they are practically impossible to inject.

Sodium chlorid, 20 per cent, has been the solution we have used in far the greatest number of cases. Except for the thirst very little objection to its use has been found, and it is apparently as effective as any other solution in the ordinary sized veins. However, we do use sodium salicylate, solutions 20 to 30 per cent, and even 40 per cent, in very large veins, where there is a good deal of dilution in the big pools of blood. In one or two instances we have used tourniquets immediately above and below, and have aspirated as much blood as we could get out of the veins before injecting the 40 per cent solution of sodium salicylate, with perfect success.

The armamentarium is quite important even in this minor operative procedure. It is absolutely essential to have a new, sharp, and very small needle, and to have a syringe whose plunger works easily. Real success and real safety follow if you draw blood before injecting, draw blood during the time of injecting, draw blood frequently, and absolutely never inject unless you can draw blood. That done, you will usually save yourself the disgrace of an unsatisfactory come-back, of sloughing and future scarring, which is as bad or worse than the original veins. However, where a large number of cases are treated, one will sometimes have needle leaks or some other mishap which may cause some sloughing.

Do not try to inject too many veins at one sitting, thereby using too much of any one solution. It is not necessary because these patients are not greatly inconvenienced, and if there are many veins to be taken care of, it is far better to have the patient come back oftener than to try to overdo the procedure at one sitting.

Occasionally we have patients who cry out with pain for a minute or more; others apparently never have any discomfort other than the little needle prick and a slight cramping sensation.

We use tourniquets above the operative area, and one is usually placed around the ankle. In most instances it is left on until an elastic Ace bandage is applied following the very firm pressure made for a few minutes after each injection. This Ace bandage is left on usually for the first forty-eight hours, after which no other treatment is necessary.

As compared with our original method of treating varicose veins by surgery, this safe procedure certainly gives far more benefit at much less cost, a saving of time, money, suffering, and anxiety. It is undoubtedly one of our greatest advances in surgery in recent years.

Horace F. Pierce, M. D. (1421 Chapala Street, Santa Barbara).—Great interest has been aroused by the injection treatment of varicose veins, due, no doubt, to the not too satisfactory surgical treatment of varicose veins. The medical profession as a whole are greatly interested in this method of their cure, which is evidenced by the numerous papers and discussions from without the entire medical world.

Doctors Woolsey and Millzner have brought forward the pertinent points in the pathology of the venous obliteration, which are the destruction of the intima, the thrombus formation, the nailing of the thrombus to the vein wall, so to speak, by the ingrowth of capillaries and fibroblasts, so that the thrombus cannot get away and cause embolism. Recanalization does occur at times and it is due to incomplete destruction of the intima. The vein needs only to be reinjected at a future date to insure its complete obliteration and cure.

We must not forget the difference in the pathology of a chemical venitis, as utilized in the cure of varicose veins, from phlebitis which is a bacterial irritation of the vein wall. In phlebitis a bacterial irritation is present in the vein wall, spotted damage of the intima occurs, thrombus formation is poor, the clot is loose and floats in the venous blood; it may contain bacteria and pus and is a good virile source for emboli. Venitis as produced chemically is not a bacterial haphazard process; it is a definite chemical destruction of the intima with definite fixation of a hard thrombus, hence its safety.

Although we have tried many solutions we have come to prefer sodium salicylate in 20 to 40 per cent strength. Before injecting, and after the needle is in the vein, we like to milk out the blood in the vein to assure maximum destruction of the intima.

Those cases with chronic ulcers, infected skin, eczema, are first treated with Unna's gelatin dressing for support and reduction of the swelling, if the large tributary veins are not visible. We have found one or two injections can be made before the Unna's paste dressing is applied, and as the swelling leaves, the rest of the venous trunk will be visible and can be injected. A combination of high ligation and injection can be done if this is thought necessary; however, so far in our experience, we have not found it necessary to do the combined method of treatment.

The contraindications to the use of this method are few, provided the involved limb responds to the tests for patency of the deep channels. It has been said that pregnancy is a contraindication to the chemical obliteration of varicose veins. However, injections in pregnancy have been used for those cases that need it, and there seems to be no added risk because of the existing pregnancy.

The technique as described by the author needs no further elaboration. We like to begin our injections at the lowest point, namely, about four inches from the ankle and carry the procedure toward the groin. In legs with much swelling, sometimes only the larger pools can be found; after destroying these larger pools

and using supporting treatment, the swelling will gradually leave and subsequently the remaining varices can be injected.

In conclusion, I would add that no procedure has given us or our varicose patients such satisfaction with such a small amount of effort as is involved in the injection and cure of varicose veins.

EXTERNAL BONE PLATING FOR LONG BONES*

By Charles Alfred Dukes, M. D.
Oakland

Discussion *by W. C. Adams, M. D., Oakland; Philip Stephens, M. D., Los Angeles; Lionel D. Prince, M. D., San Francisco.*

IN preparing a paper upon external bone plates or external fixation apparatus for fracture of the long bones, it is not my purpose to enter into theory of this practice, but to give some of the interesting points that have been developed in my use of this method of splinting of the fractures of long bones. Lambotte, twenty years ago, wrote an article illustrating his method of external bone plates (Fig. 1). Since that time there have been few articles until the appearance of the recent one by Mercier of Montreal.

DUKES' METHOD

Some ten years ago, in a compound fracture where it seemed impossible to get the proper fixation of the fractured bones, I devised from an old Lane plate and a couple of nuts on some stove bolts, a fixation plate with only the ends of the bolts that were screwed into the bones remaining buried. This device was not satisfactory, but it did hold the bones in position until such time as external fixation retained them in firm position.

From that time I began to improve the type of bolt and plate until I developed the external bone plate which is here discussed. I am sure that the simplicity of this method will recommend it. Most of the plates that have been used heretofore have been complicated and inefficient.

Our first difficulty was encountered in screwing the bolts into the bone. First boring the holes was tried; then threading them and screwing the bolts in with the screwdriver. Then a drill slightly larger than the bolt was used so that the bolts were screwed in easily, but this did not answer satisfactorily because the bolts were liable to slip out. Later I devised a bolt with a pointed tip and a square head and screwed the bolts in with a wrench. This had its disadvantage because sometimes the bolt head was twisted off. This fault was due to the manufacture of the bolt. The most satisfactory bolt has been an ordinary screw-headed bolt of malleable steel used with an ordinary screwdriver to screw it tightly into place. Some of the failures of this method were due to the improper insertion or depth of the bolt into the bone. In one plate which was placed in the femur, the two upper bolts came out of the bone because of the tension (Figs. 2 and 3). This was due to the bolts not being screwed in deep enough. In another case the tip of the bolt, because of the stress placed thereon, was broken off in the bone; and later it was necessary to remove the tip with a chisel. None of these patients had any serious or lasting effects of ill character from our crude method of application of this device.

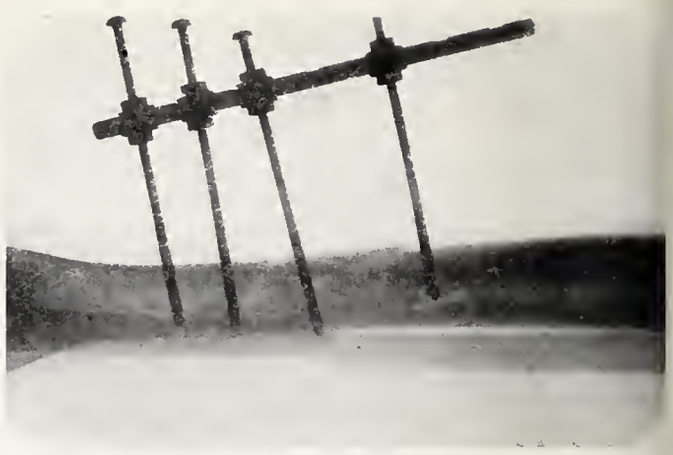

Fig. 2 (a).—Anterior view of Dukes' plate in position on compound fracture of tibia and fibula

In patients where the reduction of the long bone is simply by external manipulation and where it is not desired to make a long incision, a trocar can be introduced under the fluoroscope, the trocar removed and the shield left in place. A drill can be introduced through this and holes made in the bone, and the bolt can be introduced and screwed into place. This makes a procedure as simple as introducing the Steinman pin or a pair of tongs, and with no more attendant dangers.

MERCIER'S METHOD

In the cases where it is necessary to reduce the fracture by the open method, the method used by Mercier of Montreal is excellent.

An incision of the skin and subcutaneous tissue is made down to the bone, the middle of the in-

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

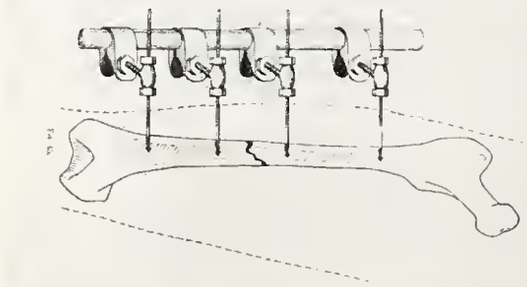

Fig. 1.—Lambotte's earliest plate

Fig. 2 (b).—Posterior view

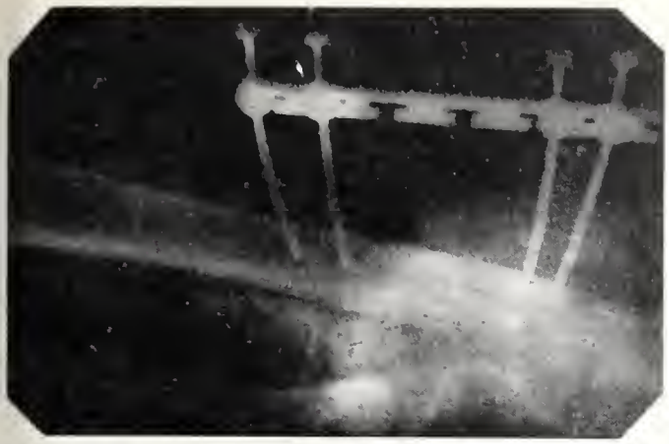

Fig. 3.—Dukes' bone plate in faulty position in femur

Fig. 5.—Same fracture showing displacement after the upper bolts became loosened

cision being opposite the seat of the fracture and about one inch longer than the plate of the fixation set. The fragments of the bone being completely stripped of their surrounding tissue, their ends are brought out of the wound and cleaned of all tissue or new formation, whether hard or soft, and reduced as may be indicated. The four holes are then drilled to receive the screws through only one side of the bone. The principle is used by Mercier, of two nuts separated on a bolt so that the plate is introduced between them. These nuts are then locked against the plate, fixing it in any position which is desired to hold the bones in proper apposition.

The after-treatment of bone fixation is exceedingly simple, and where the technique is properly carried out, we have not seen any complications arising from the boring of the holes into the bone.

The removal of the plate at the end of two to four weeks is exceedingly simple and painless. The nuts on the plate are unlocked, the plate removed, and the bolts come out very easily by unscrewing them.

In my experience there is no objection to the use of the external bone plate. It is only advocated and advised in those conditions where other methods of a simpler character fail to splint the fractured bone properly.

It has its place in compound fractures (Fig. 4) as well as in simple fractures. This method is presented for the purpose of eliciting suggestions in the improvement of the mechanical device and also to bring to your attention a method which, in my opinion, can be used much more frequently than is done at the present time.

601 Wakefield Building.

Note.—Owing to lack of space, only a few illustrations are reproduced in California and Western Medicine. Additional illustrations will be printed in the reprints, which may be had by addressing the author.

DISCUSSION

W. C. Adams, M. D. (802 Medical Building, Oakland).—The Dukes external bone plate has a very definite use in bone surgery. I see its greatest value in the treatment of recent compound fractures of the long bones. It is a great satisfaction to know that the fragments are being held firmly in apposition during the sloughing and infectious stage usually encountered in ragged and dirty compound fractures. By fixing, it aids in the prevention of bone infection or hastens the recovery of infections in these cases in that it stops irritation caused by the movement of fragments. By its use one may dress and cleanse the open wound without fear of disturbing the loose bone ends.

I now have on hand a case in which the leg was two-thirds amputated four inches above the ankle joint. By means of the Dukes' bone plate I was able to fix the tibial fragments for ten days, and at the end of this period new tissue growth had taken place between the fragments and, by further splinting, the fragments have held in fine apposition. Without its aid such a condition would have been extremely difficult to obtain, there being much tissue destruction with the resultant sloughing and infection.

It may be employed very satisfactorily in the simple fractures which have a tendency to displacement. I used it in a widely dislocated simple fracture of the upper third of the femur with excellent results.

The danger of infection entering from without alongside the screws is negligible, for there is sufficient serous drainage flowing outwardly to prevent

Fig. 4.—Photograph of external bone plate in position. Compound fracture of tibia and fibula.

Fig. 6.—Dukes' bone plate in position in fracture showing use of six bolts instead of four

any invasion and should any infection from within occur, the screws permit of good drainage.

The surgeon will find the application of the Dukes plate quite simple when Mercier's method is used, and after having once employed it he will have learned of a valuable method of treatment in fractures of the long bones.

❊

Philip Stephens, M. D. (1136 West Sixth Street, Los Angeles).—Any method devised which will bring about skeletal approximation and immobilization to a fractured bone is ideal. Obviously the great drawback to this method of approximation and immobilization is the necessity for either open operation or the subcutaneous insertion of Steinman pin, tongs, or other methods which need constant attention, apparatus for extension, etc., along with the danger of infection.

The old Lambotte external bone plate was a simple method of accomplishing positive or skeletal treatment of fractures, but was not used to any great extent by reason of the fact that the fragments were rather difficult to bring into approximation—even after the screws were inserted—due to the difficulty in connecting the screws with the plate.

From Doctor Dukes' description of his method, and after a personal interview and discussion following the reading of his paper, I was very forcibly struck with the improvement of his screw plate and method of application over that of the old Lambotte apparatus, the great advantage being, in my opinion, due to the ease with which the plate is applied after the screws are inserted by an ingenious slotting of the plate and range of fixation of the screws and bolts to it.

We are all rather inclined to use certain tools, or methods, over a period of years to the exclusion of other methods, and rather prone to be slow in the adoption of new tools and new methods, and are particularly not desirous of going back to the use of apparatus and methods which have been, in a measure, discarded. The average surgeon who investigates Doctor Dukes' method in a superficial manner is apt to leap to the conclusion that it is a simple revival of the old Lambotte method. We wish to warn against this hasty impression if it exists, for we feel that the Dukes method is not only original in its conception, but is a useful, ingenious, and easily applied method for a positive skeletal approximation and immobilization of fractures. It has sufficiently impressed us with its value to warrant its use and recommendation to others doing the same character of work.

❊

Lionel D. Prince, M. D. (490 Post Street, San Francisco).—Doctor Dukes is to be congratulated on bringing before the medical profession a modification in the method of long-bone fixation, which I consider to be a real contribution to surgery. The ability to easily improve the alignment of the bone following x-ray examination, simply by an adjustment of his modification screw plate, presents a distinct advancement over other similar methods of fixation.

The handling of fractures of long bones always presents many difficulties, and this factor alone has resulted in the invention and modification of many different types of fixation appliances. Methods become popular for a period of time and are then discarded or replaced by newer methods. Some surgeons become exceedingly proficient or adept in the use of certain procedures of fixation to the exclusion of all other methods. For the average surgeon treating fractures, no single method is the best, and he must modify his procedure to suit the requirement of the case in hand.

Doctor Dukes' method is not one that will tend to prove popular, as it demands a certain amount of special surgical skill and judgment that can only result from its repeated use. I believe, however, that its use offers tremendous advantages in compound fractures where many of the ordinary simple methods cannot be used and where complete fixation and constant accessibility to the wound is so essential.

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Doctor Dukes (closing).—In closing the discussion I wish to thank Doctors Adams, Stephens, and Prince for their favorable consideration of this addition to fixation of long bones.

I should like to emphasize the necessity of placing the bolts deep enough into the bone tissue so that the stress placed upon them will not cause them to become displaced. This may, at times, require putting the bolts completely through the bone.

THE SPASTIC COLON*

By Quinter O. Gilbert, M. D.
Oakland

Discussion *by Ernest S. du Bray, M. D., San Francisco; Fred H. Kruse, M. D., San Francisco; R. Manning Clarke, M. D., Los Angeles; John V. Barrow, M. D., Los Angeles.*

THE understanding of motor phenomena of the colon enables us to evaluate clinical symptomatology. An attempt to explain the symptoms of a patient with gastro-intestinal trouble by the mechanism of physiological complexes is in many ways valuable to the patient, but it is more important to the physician as an incentive to the study of the rationale of the disorders presented. It is with difficulty that any given part of a motor mechanism so synchronously arranged as the gastro-intestinal tract can be considered without considering the whole; still, we wish to consider more especially the disorders arising from the large bowel.

It is timely to discuss some of these problems, without being too controversial. A perusal of the literature of the past three decades convinces us that our knowledge of the mechanism of the lower bowel is still incomplete. The greatest advance has taken place in the past decade, and in this country mostly in the last part of this period. This, we believe, is due to the development of a physiological viewpoint. The x-ray has given us new vision and enabled us to separate some truths and facts from a heritage rich in false conceptions.

Constipation is one of the commonest of complaints. To the lay mind it means misery, mental and physical, because of real or fancied lack of relief from pathological complexes by the evacuation of fecal contents. This is a problem in medicine because it involves the heritage of misconceptions, amplified by propaganda of health restaurants, and of diet specialists.

"Constipation" is a rather meaningless term and should be considered under the general head of "Disordered Bowel Movement." Our notion of this condition has undergone change during recent years, because of the larger experience gained in following the histories of private, surgical and nonsurgical patients over longer periods of time. This experience aided by a scientific background has obliged us to approach these problems from a physiological viewpoint.

MECHANISM OF MOTION

When considering the large colon, we are considering a tube which is the lower segment of a complex chemical mill, the contents of which are propelled by the musculature, the contraction of which produces various effects in size and shape and position of a segment of gut, such as narrow-

* Read before the General Medicine Section of the California Medical Association at the Fifty-Sixth Annual Session, April 25-28, 1927.

ing of the lumen, shortening of the segment and imparting of a screw motion (Carey). Normally there is a regular rhythm, generally downward, augmented at certain so-called nodes. Motility is slower in the lower segments, but the contractions are more powerful. Case has described a hypothetical node or "pace maker" near the hepatic flexure.

The mechanism is controlled by the vegetative nervous system. The sympathetics inhibit, while the motor and secretory impulses are carried by the parasympathetics (vagus and pelvic) through the plexuses of Auerbach and Meissner. These plexuses are in turn supplied by spinal and cranial nerves through ganglia along the spinal cord. True sensory nerves are not supplied to this viscus until we reach the area near the anus. This means that motor changes may be present long before painful sensations through the spinal or cranial nerves, which in turn are referred to sensory nerves of the external body tissues or produce a hyperalgesia of certain areas. Contraction of the bowel is caused by a stimulus from within. When gross errors of motility occur there is an overstimulation of one of the nodes. A tonic contraction ensues producing a physiological obstruction and pain is produced by irritation of the plexus of Auerbach. Changes in the mesentery are referred through the spinal system. The threshold of pain varies with the individual. It will be readily seen that by changed motility most subjective symptoms, such as pain, fullness, pressure distress, sense of gas, disorders of evacuation, nausea and vomiting, arise. One important point we wish to make is that when a distended viscus is given its maximum stimulus to contract, the sensation which the patient feels is the same as the sensation felt when the viscus is severely contracted. So fullness and gas are often complained of when contraction has occurred and when no gas can be demonstrated.

Secretion within the tube is carried on by glands within the mucous membrane. While secretion may be materially altered in patients suffering from disorders of their vegetative nervous systems, we are convinced, on the other hand, that marked changes may occur in the function of the mucous membrane associated with prolonged hyperkinesis. It has been demonstrated that hyperactive, inflamed, ulcerative bowel tissue has a decreased defense mechanism against absorption of toxins and the passage of bacteria.

EXTRINSIC AND INTRINSIC MOTOR DISORDERS

In general, we may divide motor disorders of the large bowel into two classes, extrinsic and intrinsic. Under the former may be grouped constitutional changes, various disorders of the nervous mechanism and reflex stimulation, especially from gall-bladder disease, chronic appendicitis, adhesions about the cecum and hepatic flexure and more remotely from renal and female pelvic disorders. The *intrinsic* disorders are dietetic, bacterial, parasitic with primary and secondary inflammation and ulceration, and disorders of the rectum and anus, such as proctitis, fissures, and hemorrhoids.

While it is true that the same degree of pathology will affect constitutionally different people with varying degrees of severity, the literary dictum that spastic conditions occur only in the "neurasthenic" is not justifiable. We feel that it reflects on the physicians' knowledge of functional nervous disorders. We know that the threshold of pain and the susceptibility to visceral sensations are variable factors, but on the other hand we are convinced that disorders of motor function may induce marked nervous and psychic disturbances, as evidenced by asthenia, mental depression, phobias and reflex cardiac and circulatory changes. The mental and physical fatigue which is common in bowel disorders is not only caused by bowel disorder but in turn profoundly influences it.

Extrinsic Disorders.—Observation has taught us that general and segmental disorders in the large bowel are common with right abdominal disease, but most common with biliary pathology. The interrelationship is frequent and, since the symptomatology is produced by the motor phenomena of the viscus, we may err as to the causative pathology. While we know that the disorders of the bowel cannot be corrected in the presence of a pathological gall bladder, chronically infected appendix, or the resulting adhesions of a right abdominal peritonitis, we must not forget that the bowel may have suffered so much from long-standing extrinsic stimulation that, even after operation, it remains a primarily diseased organ with a hyperkinetic mechanism, diseased mucosa with ulcerations and host to an abnormal micro-organic colony. Again we must not lose the point of view ofttimes expressed by J. G. Van Zwaluenberg that stasis due to disordered motor phenomena may in the ultimate analysis be the fundamental factor in inducing bacterial and chemical changes which produce lesions for which we do operations.

Since the symptoms of right abdominal disease are produced largely by motility changes, motor changes on the other hand, if produced from other causes, may give rise to similar symptoms.

It is argued by some that such conditions are primary evidence of a mental and nervous disorder. We wish to grant that marked nervous and psychic changes occur in some people with defecation. There are many who have obsessions concerning it. It is true that they are influenced by the distention, overacting or wrong-acting bowel. It is true that some of these symptoms may be produced by a tampon and relief given by removal or evacuation. This class must be clinically separated from the definitely pathological ones which we are discussing, and be treated accordingly. Psychic disturbances and neuroses usually have two factors, a psychic deficiency and a proper provocative stimulus.

Intrinsic Disorders—Gas is an interesting consideration, as it is ofttimes a major complaint. We must establish certain facts in this connection. Gas in the stomach is swallowed, it usually lies high under the diaphragm and seldom passes through the pylorus. Gas in the small bowel in the adult is uncommon. If present it means, as a rule, pathological change most often about the

cecum or ileocecal valve. Gas in the large bowel is nearly always present. This gas usually arises from chemical changes in the bowel contents. Gas may be present in large quantities in disorders of circulation, apparently arising from the blood, as seen ofttimes in heart failure and pneumonia. The most interesting finding is that, in a majority of patients complaining of gas, the fluoroscope reveals no gas, but on the other hand a spasm where gas is felt. In other words, a hypertonic contracted viscus gives subjectively the same sensations as one distended.

Gas in the large bowel tends to rise upward and to collect at the hepatic and splenic flexures, producing a "locking" of the bowel which ofttimes requires a general and powerful colicky type of contraction to dislodge it. The interchange of gas normally takes place quite readily from the bowel to the blood and vice versa. While it is advocated that we have a defensive mechanism against most poisonous gases of decompensation, in much greater concentration than are usually found, we believe the problem is not answered, that many of the secondary symptoms associated with types of fermentative colitis may be due to absorbed gas affecting the nervous system. It is interesting to note in this connection that Holmgren has studied three hundred and eighty cases of "fermentative dyspepsia" in which the causative agent was an iodophilic clostridium. Gas is a true motor problem in that it changes the relative density of the bowel contents. The importance of this is suggested when we remember that the contents of the abdomen are under hydrostatic equilibrium and contents of mean specific gravity move equally as readily upward as downward. This is consoling to the enteroptotic, but is not a good advertising slogan for the belt maker.

With this viewpoint the patient who complains of a relatively simple disorder of lower bowel should be considered as a real medical problem and not dismissed with the advice to take some pills, eat bran, and fill up with all the cellulose and fodder of the vegetable kingdom. Of most importance is a careful detailed history and physical examination as to the nature of the disorder, as well as evaluation of all extrinsic and intrinsic causes. Of special examination means, we call attention, first, to the x-ray. Barium enemata in most of the lower bowel motor disorders are practically useless except to locate organic structures and in some patients to demonstrate the site of severe tonic spasm. On the other hand the x-ray is most valuable when the motility of the bowel is studied under normal conditions. This means that the patient should eat some real food, and be given a preliminary preparation which does not include a gastric manipulation or cathartics. The rectal and proctoscopic examination is most essential. The proctoscopic is most important, as it enables one to judge the condition of the mucous membrane, obtain bacteriologic smears and remove pus and mucus for microscopic examination. While one may find parasites in the stool smears, our percentage is much higher when the fresh exudate is examined. Stool examination is most important not only for the evidence of digestive disorders, but for the bacterial and parasitic changes. We believe the percentage of patients with ameba will be much larger if we are prepared to examine properly the fresh material rather than trust a less interested technician in a distant laboratory. Infectious lesions elsewhere in the body, especially in the upper digestive and respiratory tract, are of prime importance. It has been interesting to note that ofttimes troublesome disorders in the upper respiratory tract, on the other hand, become innocuous after correction of abdominal infections.

RATIONALE OF TREATMENT

This viewpoint suggests the rationale of treatment. Social, business, and psychic disturbances are of prime importance and must receive adequate corrective instruction. Many pathological conditions must be corrected by surgery. These should be directed definitely toward the removal of infected material and tissue or lesions which induce abnormal motor stimulation. We believe most patients will do better without surgical procedures which grossly disturb the continuity and the normal physiological mechanical sequence. Experience has suggested that many of the poor results following right abdominal surgery may be explained by the foregoing factors, and ofttimes relief is obtained with proper medical management given months and even years after justifiable operations.

The acidity of gastric contents and the mechanical state of the food is important. In an overstimulated bowel or section of bowel, in an active or subacute inflammatory condition, bland nonirritative foods are suggested. In some patients the allergic relationship of food may be a causative factor. Irritating cathartics are to be discouraged. Condiments, caffein, and nicotin profoundly influence the parasympathetic nervous system of many patients. Specific therapy is indicated in some of the pyogenic infections ofttimes secondary to ulceration, as in the primary specific infection of entameba. Bacteriological and clinical experience seems to show that we cannot profoundly change the flora of the bowel by introduction of microörganisms, but proper bowel management may in turn materially alter the existing flora.

SUMMARY

Time will not permit further details. If we have succeeded in conveying to you the suggestion that possibly the study of the general motility of the bowels may ofttimes be of as much importance as seeking for organic defects, we have accomplished our purpose. While there are many controversial theories and notions about pathological changes in the large bowel, we believe the conditions suggested are essentially correct:

1. That spastic conditions are of frequent existence.
2. That atony seldom exists without associated spasms.
3. Hyperkinesis itself may induce intrinsic changes in the mucosa of the bowel.
4. Pathological conditions in the right abdomen often cause hyperkinesis, especially of the trans-

verse colon, and are not always relieved by operation alone.

5. That in disordered large bowels, both primary and secondary microörganisms and parasites, especially ameba, are overlooked and are often present with surgical conditions.

6. That hyperkinesis and mucous membrane changes are not always secondary to psychic and nervous disorders, but on the other hand may induce varying degrees of psychic and nervous phenomena.

7. That motor changes should be studied after normal feeding rather than by enemata.

8. Motor changes must be evaluated in "surgical right abdomen," and corrective follow-up treatment instituted.

9. The physiological absorption and protective mechanism in a hyperkinetic or ulcerated or inflamed bowel is not the same as in the normal.

10. Bowels with spasms from intrinsic lesions should be treated as inflamed membranes.

11. Symptoms largely arise not so much from pathological lesions *per se,* as from disordered motor changes thus induced.

1904 Franklin Street.

DISCUSSION

Ernest S. du Bray, M. D. (870 Market Street, San Francisco).—"The sins of the colon are its diseases. But I sometimes wonder whether it is not more sinned against than sinning, for what with attacks above with purges, attacks from below with douches, and frontal attacks by the surgeon, its sorrows are numerous and real. I believe that a more thorough appreciation of its normal anatomy and physiology, and the routine employment of the various methods of examination which modern science has made available, are required in order that its sins may be recognized at such an early stage that treatment may lead to their complete and permanent relief."

Thus Arthur F. Hurst in 1921 prefaced an interesting paper entitled "The Sins and Sorrows of the Colon."

Doctor Gilbert in the paper at hand again urges the physiologic approach to the understanding and treatment of colon disorders and he stresses the information that can be gained by the careful study of the motor functions of the large bowel. The colon is a comparatively motionless organ if compared with the upper gastro-intestinal tract; however, if studied by x-ray immediately following the taking of food, the unique function of "mass peristalsis" can be observed. This is now recognized as the most important movement of the colon and normally occurs only two or three times each day.

The causes of chronic constipation are numerous and complex, but no consideration of them can overlook deficient motor activity, which underlies several recognized groups. Spastic constipation, or the so-called enterospasm, is one of the conditions discussed by Doctor Gilbert. In this disorder, it appears to me, the doctor has underestimated the amount of information that may be obtained by the barium enema. By examining the colon after the enema the distal part, in which delay occurs, is often found to be narrowed, whereas the proximal part has the ordinary diameter or is dilated. The constipation, however, is not due to the mechanical obstruction offered by the contracted intestine, as the x-ray shows that there is no delay in the passage of feces through the contracted segment, but the actual mechanism appears to be the absence of the normal orderly, progressive activity of the intestine, which is replaced by irregular spasmodic contractions of some parts while others remain completely inactive. It is in this type of case I have been impressed in several instances with the deleterious influence of tobacco which may act through the autonomic nervous system.

Intestinal flatulence may result from the sluggish action of the intestines in some cases of constipation, especially when the mass of feces completely blocks the intestinal lumen; on the other hand, distention of the intestine with gas by increasing the work to be done by the intestinal muscles, at the same time impairing its contractile power, leads to constipation.

The discussion of treatment is outlined. A more comprehensive exposition of this phase of the subject offering the exact measures used in the management of the different clinical groups would be welcomed.

Finally, Doctor Gilbert's conclusions seem justified, but I think all will agree that much remains to be learned before the sins are fully understood and the sorrows alleviated in the colonic disorders.

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Fred H. Kruse, M. D. (384 Post Street, San Francisco). — Doctor Gilbert's discussion of disordered function of the large bowel is most timely. Along with gall-bladder disease, peptic ulcer, and appendicitis, derangements of colonic function form the most frequent source of gastro-intestinal complaints the internist is called upon to solve. In speaking of the latter, it seems to me that the medical profession has used the term "colitis" too frequently and too loosely. There are many real cases of colitis, such as ulcerative colitis from various causes, the specific dysenteric infections, and so forth, which should be quickly and definitely recognized and grouped by themselves as representing organic pathology in the bowel, chiefly affecting the mucosa. Such diseased intestines may, of course, be spastic and irritable. Again, we may have disturbances of motor function, bringing about spasticity and irritability from diseases of neighboring abdominal and pelvic organs, giving rise to the symptoms and derangements, of which Doctor Gilbert has spoken, through reflex and associated nerve pathways. But here it has been my experience that caution is most necessary, and that proof of pathology in these neighboring viscera should be most unmistakable before resorting to surgery or radical procedures, if the chief symptoms relate to spasticity, irritability, and disordered function of the colon.

The conviction has remained with me that by far the greater percentage of cases of so-called "spastic colon" are functional in origin; or rather, I might say the behavior of the large bowel and its malfunction or derangements are simply a part of the general disturbed nervous mechanism of the individual. Such individuals need not be intrinsically neurasthenic; indeed, many seem outwardly calm and placid. But, as a group, they have a hair-trigger sympathetic or autonomic nervous system, ever responding to every alarm or irritation, be it psychic, toxic, thermic, or dietetic. Since we are considering the colon specifically, this group, then, has a "spastic colon," or, as I like to call it, an "irritable colon," just as others have an "irritable heart." The cause of the condition lies in the musculature and innervation of the bowel itself. Individuals with irritable colons commonly show alternating constipation and diarrhea or alternating phases of spasticity and violent peristalsis. Frequently the descending colon remains contracted and tense over a period, thus distending and filling the cecum enough that its tension is so increased as to cause right lower quadrant fullness, distress, or even pain, frequently leading to a mistaken diagnosis of appendicitis. It is remarkable how many such sufferers have had their appendices removed without relief. These patients are completely at a loss as to how to manage their intestinal tract, and the more concerned they have become, the worse their condition gets. They imagine that they are the victims of the most serious organic diseases and are too willing to undertake heroic measures for relief. A laxative produces violent reactions, commonly, and if they do not take a laxative the bowels will not move.

The abdominal symptomatology, as Doctor Gilbert has noted, varies. There are sore spots, tender areas, epigastric gas from air-swallowing, and sensations of

gas in the bowels, where really little or no gas exists. There are various back pains, palpitations, faint and sinking feelings, and a general mental unrest and apprehension.

It is apparent, therefore, that surgery, local colonic irrigations and treatment, and systemic enteric therapy have little or no place in the management and treatment of this group. As Ralph Brown has said:

"The irritable colon will tax the therapeutic endeavors of the internist to the utmost, but rarely should he call upon the surgeon for assistance."

A discussion of proper therapy cannot be undertaken in this space, but it should include direction of the individual as a whole, control of the nervous system, much reassurance, and the proper regimen of diet and bowel management.

R. Manning Clarke, M. D. (319 Hollingsworth Building, Los Angeles).—I have long been impressed with the importance of the control of the motility of the colon as an important weapon in combating clinical symptoms in functional derangement, so-called. It is interesting to note that in the literature there is an increasing tendency to give this importance in discussions. Doctor Gilbert says: "If we have succeeded in conveying to you the suggestion that the study of the general motility of the bowels may be of more importance than the looking for organic defects, possibly surgical, we have accomplished our purpose." With this I can heartily agree, with the exception of gross pathology, which we know markedly influences the motility and general functions of the tract, such as severe inflammations of the appendix, gall bladder, and pelvic lesions.

Too little attention has been paid to the rôle of disturbed motility, especially in history taking. The patient with two or three loose bowel movements daily, feeling that "his elimination is perfect," will answer questions in generalities that put the history taker off his guard unless he thoroughly understands its importance and insists on details. The motility from this patient's tract needs to be controlled. He needs to be eating a little less bulk and residue, a little more concentrated diet that will quiet his movements down to *one formed stool a day*. Oftentimes many of his symptoms will disappear and he will be saved an operation for gall bladder or appendix or other condition which never existed.

It is, of course, necessary, as the doctor points out, that the ameba and many other parasites and microorganisms be ruled out, and I feel that too little attention is paid to stool analysis and study. It is important, as the doctor has stressed, that the stool be looked over in a fresh condition, by yourself or by trained assistants under your direct charge, in order that proper conclusions may be arrived at. To send one or two stools to a distant laboratory that is not interested in this particular matter is, to me, as good as useless.

Along with these motor changes discussed by Doctor Gilbert there are many reflexes that arise which are of the utmost importance. My article published in California and Western Medicine, October 1926, makes clear the importance I attach to them.

It is hardly possible to agree with Doctor Gilbert's statement as to how pain in the hollow viscera is caused. The work of Meltzer, as well as Bayless and Starling, I think pretty thoroughly cleared up the matter that pain is a muscle sense in the hollow viscera, and that it is caused by its disturbance, mainly distention. After the pronouncement of the "law of the intestine" by Bayless and Starling, and later the "law of contrary enervation" by Meltzer, I had felt that all controversy regarding the cause of pain had been done away with; but I see there still is a divergence of opinion.

John V. Barrow, M. D. (701 Westlake Professional Building).—I have been very much interested in Doctor Gilbert's presentation of the mechanism of the bowel movements. From clinical experience the origin of their nerve stimulus could well be located in the hepatic flexure, or, probably better, in the cecum itself. The appendix may have a very marked influence on the initiation of peristaltic waves. The sigmoid and rectum certainly seem to receive a great deal of inhibition from the mechanical stimulus of these two areas.

Long chronic infection undoubtedly destroys the protective mechanism of the mucous membrane of the colon, and an old chronic ulcerative bowel readily absorbs unsynthesized protein material, bacteria, and protozoa.

PELLAGRA*

By Gordon E. Hein, M. D.
and
John Merrill, M. D.
San Francisco

Discussion *by George Dock, M. D., Pasadena; Fred B. Clarke, M. D., Long Beach.*

THE oft-held viewpoint that pellagra is a concomitant of poverty, crowding, poor hygiene and food, would lead one to believe that it should be uncommon in California, with her ample land, relative freedom from crowding, and abundance of green vegetables almost the year round. Yet, in the past few years at the San Francisco Hospital an increase has been noted in the number of patients presenting the clinical syndrome known as pellagra. This study covers patients who gave a history of onset after an alcoholic debauch or prolonged alcoholism, as well as those with a history of dietary deficiency from other causes. Only patients who have had at least three of the major signs, symmetrical dermatitis, sore tongue, diarrhea, or changes in the central nervous system, have been included in this report. Patients who presented questionable dermatitis, or some of the symptoms of the pellagra syndrome, were probably true cases of milder type and would have raised the incidence materially, but they were excluded.

Admissions of pellagrins to the San Francisco Hospital show a definite rise. The diagnoses were all made by the same men. Since the clinical picture is so striking, we feel that a true increase is represented. An almost parallel increase is noted in the number of cases recorded by the State Board of Health of California, as indicated in the following table:

Table 1.—*Showing Incidence of Pellagra in Different Years (Not Including Recurrences)*

Year	San Francisco Hospital	State of California Board of Health
1918	3	—
1919	1	—
1920	1	16
1921	0	21
1922	1	32
1923	0	42
1924	3	38
1925	9	63
1926	13	58
1927	7	45

PREDISPOSING FACTORS

Since 1924 we have observed twenty-nine cases on the medical service of the University of California at the San Francisco Hospital.

* From the Department of Medicine (San Francisco Hospital), University of California Medical School, San Francisco.

* Read before the General Medicine Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

Sex.—The syndrome affected men more commonly than women in the proportion of about 18:11.

Age.—Broadly speaking, the disease was found in persons over forty-five years of age, although the youngest patient was seventeen years old and the oldest sixty-seven years. In this very small series the women were younger than the men, but this is probably a coincidence.

Residence.—All but two had been in the city of San Francisco for a period of at least two years and approximately two-thirds had been here for twelve or more years. One of the two had lived in California for seven years, the other for twenty years. This is of interest because of the seasonal variations in the syndrome and because in San Francisco the changes in temperature with the various seasons are not marked. Moreover, although cool the year round, fresh vegetables are available throughout the year.

Nativity.—Twelve of the patients were native Californians; eight were born in other states, two in Canada, three in Ireland, two in Italy, one in Hungary, and one in Spain. Missouri, Tennessee, Kentucky, Maine, Washington, West Virginia, Georgia, and Pennsylvania supplied those not born in California. The large number of Irish people represented was surprising. In ten cases both parents were born in Ireland and in two others one of the parents was Irish. A large number of people of Irish extraction are admitted to the hospital, and during the month of January 1926, sixty-seven patients with both parents of Irish birth, and thirty-one with one parent of Irish birth were admitted, which is 13 per cent of the number admitted, as compared with 34 per cent of Irish pellagrins. The rest were of English, German, Spanish, or Italian descent although all were born in the United States.

Type of Quarters.—As would be expected in a group of people in a charity hospital, the majority came from two localities where the dwellings were poor and quarters were not the best. About one-third came from rooms in cheap hotels or rooming houses, some from flats where they had been living, and in a few instances it was impossible to find where the patients had been. A few came from parts of the city where there is little crowding. Only two came from the same address, that of a cheap hotel in the poorer section of the city. Both patients were there in 1926, one in April and one in September. Two had been in the county jail, one only two days and the other two weeks, with an interval of nine months supervening.

Occupation.—Five of the eleven women were married and worked at home, three others did housework, two were filing clerks, and one worked as a candy wrapper. The wages of those who worked were very low.

Four of the men were laborers working where they could, but varied occupations were followed by the rest. A hospital orderly, clerk, waiter, real estate agent, cabman, street-car conductor, two stevedores, teamster, moulder, carpenter, butcher, cigar-box maker, and boilermaker were represented.

Diet.—It was hard to gain an accurate conception of the diet before the onset of the illness. As a whole the diets were unsatisfactory. Meat was eaten sparingly by the majority. Green vegetables were reduced in the food almost as often as meat. In a few instances the diet seemed sufficient and other people on the same food did not become ill.

Instances of markedly deficient diets were obtained. A girl had been told she was gaining weight (she then weighed 125 pounds). She voluntarily starved herself, her diet consisting principally of pastries in small amounts. On admission to the hospital she weighed sixty-two pounds, had dermatitis of the hands and feet, sore tongue, diarrhea, and mental changes so extreme as to necessitate forced feeding. Another woman, because of lack of money, had deprived herself of proper food for over a year. She had eaten small amounts of bread, water, eggs, and milk, but had eaten almost no meat nor vegetables. Two of the women in the group stated that they were accustomed to take one or two glasses of unboiled milk daily, and three others used small quantities of milk.

It was felt that probably unmarried men as a whole had a less balanced diet than married ones, and of the group of eighteen, fourteen were bachelors, two were separated from their wives, and only two were married. Of the women, one was single, five married, three were separated, and two were widows.

Alcohol.—Alcoholic excess was common and apparently often a precipitating factor. Seventeen of the men and seven of the women gave a history of excessive use of alcohol. One man stated that he used it "moderately," but went on occasional sprees. As a rule, the alcohol was taken in the form of "moonshine," but two patients had taken ethyl alcohol diluted with methyl and both had well-marked optic neuritis. Another had been taking four bottles of Jamaica ginger daily. The impression gained was that a considerable number were recovering from acute prolonged intoxication and several were on the verge of delirium tremens. Two women denied using alcohol and no evidence that it had been used was obtained.

The rule was that illness followed "sprees" at a time when alcohol formed the chief article of food, although "alcohol" may have been acting on the intestinal tract or whole body over a prolonged period.

Operations.—Three men had had operations on the gastro-intestinal tract; one had a gastrostomy with retrograde dilatation of the esophagus for stricture following a suicide attempt; the other two had had gastro-enterostomies, one ten years before for peptic ulcer, the other in 1916 for a similar condition. All were users of large amounts of alcohol. At present we have under observation a patient with gastric ulcer who developed severe pellagra while receiving jejunal feeding following operation in 1922. He recovered and has had no recurrence of any symptoms since, although he still has symptoms of ulcer.

Season.—The majority of patients were admitted to the hospital during the months of April

and May and July and August, in the following numbers:

Jan.	Feb.	March	April	May	June
3	0	2	3	5	3
July	Aug.	Sept.	Oct.	Nov.	Dec.
6	4	1	3	1	2

(Including reëntries.)

As near as could be determined, the month of onset was as follows:

Jan.	Feb.	March	April	May	June
1	1	1	6	3	3
July	Aug.	Sept.	Oct.	Nov.	Dec.
3	3	0	2	1	1

In seven instances the history of onset was completely unreliable.

Symptoms.—Sore mouth and diarrhea caused most of these patients to seek relief, two came because of pains in the arms and legs, one was apprehended because of his mental state, and two were brought in because of acute alcoholic intoxication.

Dermatitis.—The dermatitis uniformly affected the hands; it was symmetrical, most often over the back, and we could see no difference in cases where it had followed an alcoholic debauch and where a history of deficient diet was obtained. Lesions on the feet were present in three instances. One of the three had used alcohol extensively, one moderately, and one not at all. Sometimes the skin changes appeared late in the disease.

J. K., aet. forty-six, had a gastro-enterostomy ten years ago, which was still functioning. He had had severe attacks of diarrhea intermittently for the same period. He had been drinking four bottles of Jamaica ginger daily for some time before entry. There existed severe diarrhea, a very sore tongue with exudate under it, abdominal pain, but no dermatitis. The patient remained in the hospital under observation from June 14, 1926 to September 15, 1926, without any skin lesions occurring. He was transferred to the Laguna Honda Home with a diagnosis of pellagra without skin changes. After ten days he was sent to the University of California Hospital, now showing a severe symmetrical dermatitis of both hands. The dermatitis persisted up to his death two months later.

The skin of the neck was pigmented or thickened in four of the twenty-nine patients. The genitalia showed involvement, more commonly among the women, six of eleven having an inflammatory lesion of the vulva and vagina, while only two of eighteen men had a dermatitis involving the scrotum. No relation seems to exist between the severity of the dermatitis and the termination. Two of the patients with extremely severe dermatitis recovered while several with moderate skin changes died. The dermatitis in the group taking alcohol was fully as extensive and severe as in the group where a history of deficient diet was obtained.

The lesions varied from mild, symmetrical, sharply limited inflammatory lesions to bullae formation and extensive exfoliation. Hypertrophy of the skin and pigmentation, particularly at the borders, were noted, as was late atrophy. In some instances the skin seemed to return to normal as far as could be determined by inspection. It cleared up in several patients long before the pain in the extremities disappeared. Most of the patients expiring with the syndrome had dermatitis at the time of death, but in one the skin was normal when lethal exitus occurred.

Gastro-intestinal.—Symptoms associated with the gastro-intestinal tract were most distressing, exceeded only by the pains suffered in the extremities. A sore, inflamed tongue was present in every case but three. The most common type consisted of a deep red, smooth, sometimes fissured tongue, not particularly swollen but very shiny with patches of whitish exudate on the under surface. Papillae could not be seen. With recovery the tongue regained its normal appearance.

Diarrhea was present in all but three cases and usually was painless. There was one marked exception, however.

J. K. had periods when he had almost continuous excretion of fluid feces. At intervals he was better, but he always had diarrhea and always pain and tenesmus. He had had a gastro-enterostomy ten years previously, which was still functioning, and he also had drunk four bottles of Jamaica ginger daily. Diarrhea had begun two days before admission and persisted to death, which occurred after five months.

However, patients with extremely severe diarrhea recovered.

The sore mouth and diarrhea often disappeared before either the skin or nervous system manifestations had showed any change.

Gastric analyses were performed in eight cases, but in one of these only one estimation was made. Free hydrochloric acid was absent in six of the eight examinations, it was decreased in one, and was as high as forty in another. The patient with the high acidity was a woman with dermatitis, diarrhea, and sore tongue who, due to lack of money, had starved herself following her husband's death. She had used no alcohol as far as could be learned. All of those patients in whom the free hydrochloric acid was absent had been heavy users of alcohol. The feces were examined for blood in only eight patients, with negative results in five and blood showing in three. In one of the three the blood may have come from hemorrhoids. No investigations for photodynamic fungi were attempted.

Weight.—Loss of weight at times was extreme. One patient weighing 125 pounds dropped to 62 in three years, another lost 32 pounds in six months, and one lost 20 pounds in three months. A man weighing 138 pounds on entry lost steadily for two and one-half months to 115 pounds, remained constant for five weeks, and then gained weight at the rate of one pound daily for twenty-one days, gaining more slowly thereafter.

Nervous System.—Involvement of the nervous system was hard to estimate. The similarity of the changes in pellagra to those following alcohol poisoning, both central and peripheral, with the frequent history of indulgence in the latter made it impossible to determine which factor was playing the major etiologic rôle.

Mental deterioration varying from moderate mental slowing to definite delusions was noted in seven of the twenty-two patients. Six had marked hallucinations, chiefly visual. Those with hallucinations had tremor and looked like alcoholic patients with delirium tremens, which they may have been. Of six with hallucinations, four

died, although one who had both hallucinations and delusions recovered and was still well five months after leaving the hospital. Mental deterioration seems to carry with it a more serious prognosis than diarrhea or dermatitis.

Over one-half of the patients had pain in the legs, as a rule described as burning, but sometimes as tingling or aching, with occasional attacks of sharp, stabbing pain. It was not controlled by ordinary measures such as heat, acetylsalicylic acid, salicylates, cinchophen, or codein. Heat made it decidedly worse, and it was a common experience to find patients with their feet uncovered and hanging over the edge of the bed in order to get relief. Ice bags or cold water did not help. The pain at first was often continuous with exacerbations, but as the individual improved, it came on in attacks lasting from minutes to hours. As is often the case, it was distinctly worse at night.

Unfortunately the duration of the pain was sometimes for months, and long after the sore tongue, diarrhea, mental symptoms, and dermatitis had disappeared it persisted to make the patients miserable. It was present in three patients who died, but was extremely severe and persistent in some that recovered. In itself it seemed to have little prognostic significance. Occasionally it was also present in the upper extremities.

One man had tuberculosis and, following drinking "moonshine," developed dermatitis, diarrhea, sore mouth, and pain in the legs. His patellar reflexes disappeared and he apparently recovered after one and one-half months, the pain being the last to disappear. A year later he was taken to the San Francisco Tuberculosis Hospital, where no evidence of return of pellagra was noted with the exception of persistently absent patellar and Achilles reflexes, which may have been the result of alcoholic poisoning. He died from pulmonary tuberculosis one year and two months later, and during this period before his death he had no symptoms or signs suggesting pellagra.

Blood.—A mild secondary anemia was the rule, although both hemoglobin and red cells remained high in a few cases. Leukocytes were more often around 9,000 to 11,000, but varied from a distinct leukopenia of 3,650 to a leukocytosis of 26,000.

In two cases where the anemia was marked the color index was well above one, and white cells were decreased, the blood of both patients resembling that of a man described by Koessler.

Of the two patients in whom the anemia was marked, one died, the other recovered. As has been noted and confirmed more recently by Huck, eosinophilia is not uncommon, and with improvement the eosinophils increased in number. We found eosinophils present in the blood smears taken when the patients were admitted in slightly over one-half of our patients. As a rule, those with eosinophilic polymorphonuclear cells recovered although three who showed this type of cell early, died later, and, as Huck has so clearly pointed out, one must remember that the blood changes with the progress of the disease.

It was noted that the finger nails were curved in the long diameter in six men and in one woman, but the presence of pulmonary emphysema in two, and pulmonary tuberculosis in the third were adequate in explaining the shape of the nails. In the other four patients no satisfactory cause of the curving was evident.

MORTALITY

Twelve of the twenty-nine patients died. Two of them died of pulmonary tuberculosis and neither of these had symptoms or signs of pellagra at the time of death. In ten, pellagra and alcoholic poisoning were the chief factors in causing exitus. All had received a high caloric and high protein diet which contained a satisfactory vitamin content. One, in addition, had received a proprietary mixture supposedly high in vitamin content. In his own words, he attributed his trouble to "too much booze," as was not unusual among this group. Autopsies were done on three dying of alcoholism and pellagra. The results were disappointing. Edema of the meninges was noted twice, but otherwise the central nervous system was considered negative by the examining pathologist. A subepithelial infiltration of lymphocytes and plasma cells was found in the tongue in two cases. The rest of the gastro-intestinal tract was negative, with the usual methods of examination.

RESULTS IN THOSE RECOVERING

One woman (A. M.) returned one and one-half years after her original illness with pellagra, insisting that she had taken no alcohol in the interim.

After one and one-half years the girl (M. N.) who had starved herself to render herself thin returned with mental symptoms, but no dermatitis and no gastro-intestinal involvement.

An Italian who had very definite symptoms returned in thirteen months with advanced tuberculosis from which he died. There was no recurrence of pellagrous symptoms.

One woman (B. S.) had a recurrence following an alcoholic debauch.

A man (G. O.) was admitted to the hospital for the third time since June 1926. He had stricture of the esophagus, and used both methyl and ethyl alcohol. He had very severe neuritis, dermatitis, sore tongue, and diarrhea. Since leaving he insists that he has not used alcohol in any form. He has had no recurrence of the dermatitis, nor of the sore tongue, or diarrhea. The first reëntry was because of a peripheral neuritis with wrist drop and a trophic ulcer. The second was for trophic changes in the feet.

We have at present under treatment a man who had pellagra in 1922 following a gastrojejunostomy with jejunal feeding. He has had no recurrence since 1922.

One other man had pellagra while in Arkansas thirteen years ago. He has had repeated recurrences each spring, marked chiefly by the dermatitis. Prior to the first attack, he had taken from one to three quarts of whisky daily for three years and had been on a three-day spree one week before the onset. He has not drunk liquor since. On his present entry, thirteen years later, he had a scaling dermatitis of the backs of both hands

which disappeared after a few days of general diet, supplemented by lemon juice.

CONCLUSIONS

1. Pellagra is relatively common in San Francisco. More cases were seen in 1925 and 1926 than in previous years.

2. A deficient diet seems to be the most common etiologic finding. Unmarried men, probably because of this, are more commonly affected.

3. Alcoholism seems to be a predisposing factor in the majority of cases.

4. No difference could be detected between those cases with a history of alcoholism and those with no such history.

5. Gastro-intestinal disease may be a predisposing element.

6. The majority of patients first had symptoms in the spring (April), although little change in temperature occurs with the change in seasons. The character of the sunlight may be different in spite of the even temperature.

7. The syndrome is more common among the Irish people of San Francisco.

San Francisco Hospital.

DISCUSSION

George Dock, M. D. (94 North Madison Avenue, Pasadena).—In the unsettled condition of the etiology of pellagra this paper is timely and should excite the interest of health officers and practitioners. If twenty-nine typical cases could be observed in one hospital in three years there must have been many atypical cases, and family physicians, dermatologists, and neuropsychiatrists could with advantage review their case histories and see how many pellagrins were given erroneous diagnoses. The figures given are no cause for alarm, but at the same time show the existence of a promising field for investigation. The alcohol factor is a most interesting one, and the more or less concealed use of alcohol indicates a need for a more careful scrutiny of its possible effects. Alcohol, of course, is used in its popular and not its chemical meaning. In all future cases giving such histories the conditions previous to the supposed onset should be carefully investigated. Relatives and neighbors living under similar conditions should be sought out, examined and tabulated. There is also material for study in the large number of people who live on irrational diets, as many do for various reasons—financial, cosmetic, and other. The study should include cases of pellagra occurring in people in living conditions superior to those in the group reported. The paper should be carefully studied by all physicians and the diagnostic suggestions born in mind at all times.

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Fred B. Clarke, M. D. (1006 Pacific Southwest Building, Long Beach).—Alcohol seems to have been a contributing factor in the development of pellagra in the cases described, and one might reasonably conclude that anything that interferes with normal digestion and assimilation is of decided importance in the development of this syndrome, as this condition has been known to occur in patients with disease of the gastro-intestinal tract (carcinoma, etc.) when the lesion is sufficiently widespread to interfere with digestion.

In Italy, where this disturbance has been prevalent for years, the diet of the peasants is polenta, a thick gruel made from cornmeal. This item of diet is made up in large quantities at a time and quickly becomes fermented, but the family continue to eat this from day to day until the supply is exhausted. One might reasonably suppose that eating of polenta after fermentation might be a contributing factor in the cause of such a widespread condition in that country.

Casal in the seventeenth century stated that pellagra was a disease of the poor and undernourished and also the result of dietary deficiency. Zannetti, Marzari, Lombroso, and many others who have devoted years to the study of this disease reached a similar conclusion. Lombroso stated that if individuals could select their diet, pellagra would disappear.

In our own country, Goldberg has shown that dietary deficiency has resulted in pellagra, occurring in the institutions of the South, and that by improving the dietary they were able to prevent the occurrence of pellagra in one institution, where two hundred and thirty-four cases occurred the year before.

Sambon, Joslin, Peterson, and others believe that there is a specific etiological factor, probably an infection which is communicated from one individual to another, and there is the additional evidence of the Thompson-McFadden Pellagra Commission to support their view, but at the present time the majority of men believe that this disease is due to dietary deficiency, whether lack of fat soluble A, water soluble B, or both, or a too low proteid.

In the year 1910 there occurred in the Cook County Institute at Dunning, Illinois, sixty-five cases of pellagra. These cases were studied by Pollock, Dick and Clarke, and their observations were published in the *Journal of Infectious Diseases*. It was concluded by them that the diet in their institution was insufficient and the diet was increased by the addition of cereals, beans, peas, and meat, with the result that there was a decided decrease of the disease in the institution the following year. This method of increasing the diet was utilized by other institutions in Illinois, where there were approximately four hundred and fifty cases of pellagra in 1910, with satisfactory results in lessening the occurrence. The factor of alcohol was not considered as having any bearing on pellagra in the Illinois institutions, as these patients to a large extent had been inmates of the institutions for quite a period of time before becoming ill.

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Doctor Hein (closing).—In conclusion I wish to acknowledge indebtedness to Doctors Leroy Briggs, E. R. Twitchell, and E. Bruck for cases seen in their wards at the San Francisco Hospital.

ALLERGIC RHINITIS*

By H. P. Merrill, M. D.
Los Angeles

Discussion *by Simon Jesberg, M. D., Los Angeles; Cullen F. Welty, M. D., San Francisco; Albert H. Rowe, M. D., Oakland.*

ALLERGIC rhinitis is a recurrent or practically constant disturbance in which the mucous membrane of the nasal cavity becomes turgescent and pours out a large amount of watery secretion. It is not a disease entity, but a local manifestation of a general hypersensitiveness to irritants, generally proteins, but probably to other substances as well. It is often accompanied by other types of allergic reaction, such as asthma, and like such must be considered as a symptom and not as a disease.

It is not the purpose of this paper to discuss asthma and hay fever, but to direct attention again to cases which have been classed as neuroses, vasomotor rhinitis, and hyperplastic rhinitis by the rhinologist, and which by the allergists have been considered a minor part of a general reaction. The members of this group have been mentioned as preasthmatic conditions by some authors and their study and prompt recognition as such has been urged. Early diagnosis and proper treatment

*Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

of these conditions will do much to prevent the development of many of the chronic cases of asthma and sinus infection which so often make life miserable for patient and physician alike.

SYMPTOMS AND SIGNS

These patients come to us complaining of acute or chronic symptoms, depending upon the exposure to irritating substances. Most of the cases that we have seen have been chronic, as the acute symptoms, unless of very frequent recurrence, are considered to be due to acute colds, and such patients rarely seek medical aid. The chronic cases in their various stages of severity are very common.

The acute attack begins with a sense of uneasiness in the nose and a tendency to sneeze. This is soon followed by an intense itching in the nose, often extending to the pharynx and ears. The nose is partly or completely blocked by the turgescent mucous membrane and there is a profuse discharge of watery fluid. This is at first perfectly clear, but if the attack persists for a few days it becomes thicker and cloudy in appearance. The mucous membrane does not show the redness that accompanies an acute cold, but is paler. Sometimes bluish pink or pale red polyp-like swellings are noted. The most characteristic sign is the marked edema of the mucosa and the profuse discharge. More or less headache and malaise are usually present.

When the condition persists over a period of months or years the appearance of the nasal tissues varies. There may be a thick red mucosa covering the turbinates and septum, with pouring out of a large amount of more or less purulent mucus. Reddish polyp-like masses may project from the middle meatus and from the free edge of the turbinate. A considerable variation in appearance will be noticed if these cases are examined at short intervals. Exercise, temperature changes, smoke, and other physical factors as well as the specific irritant often change the whole picture for a period of a few minutes or hours. Some of these patients remain in about the same condition for a long time and make up cases of vasomotor rhinitis and chronic hay fever. In other patients the chronic edema results in typical mucous polyp formation on the turbinates and in the sinuses. The polypi may recur as fast as they are removed, if the cause is not removed at the same time. The whole appearance at this stage is that of the condition which we have known for years as a hyperplastic rhinitis or sinusitis. Both types have been connected with hay fever and asthma for years, and are frequently referred to as the asthmatic nose. The discharge may become purulent because of the suppuration in the sinuses, but it is one of the characteristics of hyperplastic rhinitis that the discharge is watery and not purulent. It is never the so-called "pure pus" that is present in sinus suppuration following influenza and other acute infections.

Most of these patients show no evidence of seasonal change. The severity of the symptoms varies from time to time, and complete removal from the source of irritation often will bring about remarkable improvement; with return of symptoms as soon as the irritant is again present.

ALLERGIC RHINITIS IN CHILDREN

Children furnish many examples of allergic rhinitis. They come to us with a history of recurrent or constant colds, with intermittent or almost unceasing obstruction of the nose. This is usually bilateral, but often changes erratically from one side to the other. It is never strictly unilateral. The discharge is watery or mucoid and never frankly purulent. There is rarely polyp formation in these children, but only a soft bogginess of the mucous membrane. Most of these children have had their tonsils and adenoids removed and have gone through other treatment procedures, but without the expected improvement.

Many of the cases in children are due to food sensitization, a fact which has often been overlooked, and such patients not infrequently drift into the hands of food cultists. It is hardly necessary to state that food faddists often deprive their patients of many foods that have no bearing on the symptoms of their patients. Our own literature has many reports of improvement in children after dietetic regulation, but until the allergic studies of the past few years were reported, much of such dietetic regulation rested on a somewhat empiric basis.

The pathology present in these cases may be said to vary from a simple edema of the tissue in the acute cases to the bony and soft tissue changes of hyperplastic rhinitis. The gross and microscopic appearance have been described many times.

DIAGNOSIS

In making a diagnosis the importance of a careful history cannot be overestimated. The occurrence of other allergic symptoms, such as asthma, hay fever, hives, eczema, and "foods that disagree," should be noted. The time when the symptoms are worse, the surroundings of the patient at home and at work, are all important. The patient or his parents often have ideas on these things that are worth investigating, or the patient may have noticed something that has been connected with an increase in symptoms.

The family history is important, for Cooke and others have shown that the inheritance of allergy follows Mendel's law, although the symptoms and exciting cause in the parent may be entirely different from those in the child. That is, the parent may have asthma due to grass pollen, and the child eczema due to eggs.

In the diagnosis of the specific agent at fault in any particular case the skin tests are invaluable. They must be properly and thoroughly done and generally repeated several times if they are to give worthwhile information. Experience has shown the value of trying out many test substances. A positive skin reaction with any special substance does not necessarily mean that the special substance has anything to do with the symptoms, but it does prove that the patient is allergic. All positive skin reactions must check with the

history and other findings to be of value. Duke has formulated four rules which must be fulfilled before the suspected substance can be assigned as the specific cause of the symptoms.

It has been shown that infection in the sinuses can sensitize the patient to bacteria and other products. The bacterial cases are not so common as other types of sensitization. The diagnosis is generally reached by excluding other causes and demonstrating the causative bacteria through an occasional reliable skin reaction to bacterial protein. It must be kept in mind that the sinus infection is often secondary to the allergic changes and may disappear with improvement in the allergic condition of the patient.

There is a definite group of these cases which cannot be diagnosed by our present skin tests, but with the increased number of test substances this is decreasing from year to year. These cases may be due to physical agents, such as changes in temperature or light, or to certain endocrine disturbances. They are usually difficult to diagnose and require much time and study to solve.

Some of the patients never show any symptoms except in the nasal reactions. Others develop asthma of more or less severity and chronicity. Experience has shown that the vagaries of the condition are most remarkable. Spontaneous recoveries seem to occur, or the type of reaction changes. Acute febrile diseases, infections, anesthetics, operations, or anything that produces a profound shock have been known to give temporary relief.

TREATMENT

Because of the hereditary nature of these conditions we believe that an absolute cure is rarely possible. However, relief from all symptoms is often possible, and most of these patients can be benefited if carefully studied and properly treated.

Whenever possible the treatment of these patients should be directed to the removal of the specific cause. Foods to which the patient is sensitive can usually be entirely eliminated. Contacts with animal emanations can be minimized or done away with altogether.

Reactions to several foods or air-borne substances is common, and the relative importance of each of these must be determined. In these multiple reactions it is often found that most of these substances are either potential or actual causative factors in the production of symptoms.

Complete coöperation on the part of the patient is necessary or the treatment is doomed to failure from the start and should not be undertaken. As permanent desensitization is difficult, considerable coöperation on the patient's part may be necessary for an indefinite period.

Sensitization to one or more pollens is frequently encountered in these patients. In southern California several grasses and weeds are in constant pollination, and that fact accounts for many atypical symptoms. The toxicity of pollens is so much greater than that of most other substances that, whenever sensitization to them is found, the patient should be desensitized to the offending pollen. Relief often follows although the skin reaction to the other substances persists.

Surgery is indicated whenever an anatomical deformity or sinus infection demands correction. The relief following surgery alone is not apt to be permanent and this should be explained to the patient, but it is a fact that surgery of some sort is often of benefit. Some of these cases are so mild that cauterization of the lower turbinate will give relief for a long time and our treatment may be limited to this, with no attempt at specific treatment. There are a few cases where destructive surgery is indicated, as a last resort for whatever relief it will give.

Palliative treatment is worth while at times, and here the various astringents which have been used for many years may be tried. Ephedrin gives the longest relief of any of the local applications and has fewer unpleasant effects.

Encouraging results have been reported following the use of calcium salts, as it is said that many of the patients have a low blood calcium. Our experience with calcium chlorid intravenously, with and without parathyroid and with glandular therapy has been disappointing.

Many of these cases are complicated, and with them many kinds of treatment will be necessary, depending on the indications in the individual cases. We do not advocate any one treatment to the exclusion of all others, but the recognition of the allergic basis of the symptoms should help in the clearing up of nasal conditions which have been refractory to treatment in the past.

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DISCUSSION

Simon Jesberg, M. D. (1151 West Sixth Street, Los Angeles).—There has been too little coöperation between the allergist and the rhinologist, with the result that they hold widely different viewpoints of this matter.

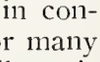
Certain changes occur in the nasal tissues as a result of systemic protein reaction which I believe are usually sufficiently characteristic to be recognized as such and not confused with other nasal disease.

The pale, thickened mucosa blocking the nasal fossae, with its water-logged appearance, is hardly caused by any other condition. It is true that much other nasal pathology may be present in patients who have allergic rhinitis, but these can hardly be attributed to allergy but are, rather, the result of nasal and sinus blocking by the swollen mucosa caused by the allergic rhinitis.

It is certain that there are many noses in which there exists allergic thickening of the nasal tissue and in which there is no other nasal disease.

It is also quite certain that no amount of surgery or other nasal treatment can remove the susceptibility of nasal tissue reaction to protein sensitization. If other nasal disease or obstruction is corrected the effect of the allergic rhinitis is less distressing.

The nasal picture of acute protein reaction differs from the chronic in that there is more hyperemia and the tissues do not seem so firm.



Cullen F. Welty, M. D. (210 Post Street, San Francisco).—In a discussion on allergic rhinitis, from the standpoint of an ear, nose, and throat specialist, I think it would be more logical to go into the pathology and malformations that happen in the ear, nose, and throat patients than to accept what has

been said by physicians who do not possess sufficient knowledge of the ear, nose, and throat to make an accurate diagnosis.

You must always bear in mind that at least 60 to 80 per cent of all these cases depend primarily upon lesions such as were here referred to. So in an analysis of a given case these things first should be excluded.

The author says that some of his cases have polypi formation from allergic rhinitis. Now this cannot be so. I have seen, and so have many other ear, nose, and throat specialists, an acute exacerbation of an old nasal condition that will resemble a polypi formation, but at the expiration of the acute exacerbation this polypi formation will have disappeared. We have perhaps an infection of the mucous membrane of the ethmoids, so that the tissues were overfilled with secretion and after the subsidence of the acute infection everything subsided. Now such conditions do not present themselves in a healthy nose. This particular case had something wrong, probably a sinus infection, and more than likely an infection of the ethmoid. Now as to the kind of ethmoid involvement. First, from contact, either septum or lateral nasal wall. Second, to an overfilled ethmoid with blood that in return produces a watery secretion. This is the class of cases that the essayist particularly speaks of, and this one alone is the only one that can be included in an allergic condition.

I have never seen a case like this that did not have a contact from a deviated septum or real pathology in the middle meatus. All ear, nose, and throat specialists who have done operating of any moment will tell you that frequently they will find a pathologic condition at operation that they were not able to demonstrate before.

Indeed you can go a few steps further by excluding hypertrophy of the posterior end of the middle and inferior turbinates, as well as adenoids and tonsils.

The comments on the findings in a particular case of allergic rhinitis, should first read:

Nose, R. S., after cocain anesthesia: Septum in the median line; no contacts of the middle turbinate with the septum or the lateral wall of the nose; no contacts with the inferior turbinate; no hypertrophies. No secretion in the middle meatus or in the olfactory fissure. No adenoids or tonsils.

After excluding all possible physical cause, one is ready to begin the study of the allergic reactions.

My reason for going into details in regard to nasal findings, is based upon my own practice with patients who have been diagnosed as allergic; and I must infer from the nasal findings that the work has been done by physicians who do not know how to recognize nasal pathology or malformations, because some of these cases had large, pathologic lesions, as well as marked malformations.

In fact, I am not familiar with a case of asthma or hay fever that has not had one or the other.

I could not do better than refer you to a symposium conducted by the sections of laryngology, otology, and rhinology at the seventy-eighth annual session of the American Medical Association, held in Washington, D. C., May 20, 1927.

This work was carried out at Jefferson Medical College and deals with the subject in an important way. It is most interesting for anyone seriously interested in the subject.*

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Albert H. Rowe, M. D. (242 Moss Avenue, Oakland).—Allergic rhinitis or perennial hay fever as Doctor Merrill states is usually due to sensitization to inhalant substances such as animal emanations, house dusts of various types, orris root, occupational dusts such as wood dusts, cereal dusts, and many others of organic nature. It is especially important to think of the various dusts in occupations, such as dusts of seeds, bulbs, and flowers in the floral business, coffee dusts, or that of spices in the selling of such foods. These merely suggest the many possibilities which must be considered by the allergist in the analysis of the patient with allergic rhinitis. Pollen is rarely the cause of an all-year-round type of hay fever though occasionally a sensitization to pollens in several or all of the groups of tree, grass, weed, and flower pollens results in an all-year-round type of rhinitis. Pollen sensitization, moreover, is frequently associated with other types of sensitization which complicate the problem of therapy. Food as a cause of allergic rhinitis is not infrequent. I called attention to such sensitization in my article on food allergy (Rowe, Albert H.: Food Allergy—Its Manifestation, Diagnosis, and Treatment, J. A. M. A., 91:1623, November 1928), presented before the American Medical Association last May, and Eyermann has recently published a reprint of such cases. Skin tests are not commonly positive in such food sensitive patients, but I have found that my "elimination diets" have been most helpful in diagnosis and treatment.

I agree with Doctor Merrill that skin-testing in cases of allergic rhinitis should be thorough and carefully executed. In practically every case testing should be done to all foods, pollens, animal emanations, dusts, orris root, pyrethrum, and miscellaneous substances that the case history and a study of the occupation, habits and environment of the patient suggest. Such testing should be repeated if the initial control and therapy do not produce results. If negative cutaneous tests are obtained intradermal tests with substances under suspicion should be done.

Certain patients with negative skin reactions and a negative family and personal history of allergy present many symptoms of allergic rhinitis due, however, to infections of the sinuses and especially of the antrums. However, these cases are not especially common; many diagnosed as such are due to sensitization to some inhalant or food which careful study over a proper period of time by the qualified allergist should have revealed. Vaccine therapy for superimposed secondary infection or occasional bacterial allergy producing allergic rhinitis must be given in a careful manner with properly prepared antigens.

In regard to treatment I feel that surgery should only be done after the allergist has examined the case and carried out indicated therapy to ascertain results. In dust-sensitive patients the control of the environment must be absolute, often requiring personal supervision and inspection in the patient's home and usually dust desensitization is beneficial. Orris desensitization requires orris-free powders and proper desensitization. Food allergy requires careful diet supervision of the type suggested above. Space does not permit a discussion of other types of therapy and desensitization. I feel that surgery is only indicated where definite evidence of infection is present or where large polypi or definite nasal abnormalities are obstructing the nasal passages. Even then allergic control is often helpful and indicated before surgery is attempted, and the postoperative recovery is much quicker and more satisfactory from the surgeon's point of view if the allergic etiology is brought under control. With proper allergic therapy, polypi, as Coke reports, may shrink without removal. I have seen so many cases of allergic rhinitis, previously operated on without any relief, which have been definitely controlled with proper allergic treatment that I feel the allergist should first determine the possible presence of an active allergy and bring such under control before any surgery is attempted. The ethmoid and turbinate contacts are often due to membrane swellings due to allergy, the control of which removes the swelling without surgery. It is fortunate that the importance of allergy as a cause for the boggy swelling of mucous

* Full report under the following:

James S. McLaughlin, Jour. A. M. A., September 10, 1927.
J. Alexander Clark, Jour. A. M. A., September 10, 1927.
P. S. Stout, Jour. A. M. A., September 10, 1927.
William F. Manges and S. J. Hawley, Jour. A. M. A., September 10, 1927.
Lewis H. Clerf, Jour. A. M. A., September 10, 1927.
John Eiman, Jour. A. M. A., September 17, 1927.
H. B. Wilmer, Jour. A. M. A., September 17, 1927.

membranes and blocking of sinuses and nasal passages is being recognized by most nasal specialists.

Doctor Merrill (closing).—I realize that this is not an orthodox paper for a rhinologist, but I believe that most of the statements are correct.

Anyone interested in rhinology will derive a great deal of profit from reviewing the literature as far back as possible. He will then be in a position to decide how much of our teaching about nasal reflexes and contact points is founded on scientific fact and how much is pure dogma. Then let him do the same with the literature on allergy. There are some rare flights of imagination there as well. With the established facts as a starting point, his clinical experience will show the vast importance of the study of allergy to the rhinologist.

DERMATOLOGY AND THE GENERAL PRACTITIONER*

REPORT OF CASE—SPONTANEOUS GANGRENE OF SKIN

By C. Ray Lounsberry, M. D.
San Diego

Discussion *by Ernest Dwight Chipman, M. D., San Francisco; H. C. L. Lindsay, M. D., Pasadena; F. H. Stibbens, M. D., Oakland.*

ONLY in recent years has dermatology, as a separate division of general medicine, been recognized and, in America, been given a place in the curricula of medical schools. For many years the dermatologist took a prominent place in shaping the destinies of medical practice in the old world; but in America it has only been within the last decade or so that Stelwagon, Ormsby, Stokes, Morrow, Pusey, Sutton, and others reported their investigations in this specialty. The early history of skin diseases abounds in the good work performed by the staff members of the London Skin and Cancer Hospital. The staff members of that institution wrote extensively, and it is due to their research and study that we owe much of our present knowledge concerning diseases of the skin.

The fact that many diseases have symptoms which manifest themselves, if not primarily, at least, secondarily upon the skin, indicates the importance of dermatology in the scheme of general medicine.

Few disease groups are more confusing than those associated with the dermal system. Diagnosis is not only difficult, but treatment many times is almost empirical.

Anaphylactic reactions due to foreign proteins are very numerous. Years ago foreign proteins were not recognized as such, and the term anaphylaxis was not used. Nowadays, as one of our leading dermatologists has stated: "The phenomenon of anaphylaxis should be thoroughly studied by those who are interested in diseases of the skin." By anaphylaxis is meant the hypersensitiveness of an individual to a foreign protein, which has either been ingested or has in some way come in contact with the dermal system. Kolmer in his textbook on "Infection, Immunity and Specific Therapy," states: "When a foreign protein is introduced into the animal body either by internal or by external administration, usually after a time a specific hypersensitiveness of the animal for this protein will appear." Successive injection of foreign proteins may produce systemic reactions resulting in great illness, many times followed by death. According to Rosenau: "Anaphylaxis may be considered: as a condition of unusual or exaggerated susceptibility of the organism to a foreign protein."

Chipman states: "In our search for etiologic factors we now have a list of possibilities, most of which belong to the present generation. I believe that it is fair to propound the following as worthy of complete investigation in every dermatosis of unknown origin—focal infection, the sympathetic nervous system, the internal secretory system, protein sensitization, and disturbed metabolism."

The diagnosis of skin diseases requires painstaking care. A complete physical examination should be made, following a careful history. The laboratory examination should be thoroughly done. The blood should be examined for a possible luetic or hidden tuberculous infection, especially if the disease is of a serious, chronic or of unknown character. For example, a Wassermann or a Kahn test should be done in all chronic dermatoses.

The question arises as to whether failure in diagnosis does not result from not following the examination methods taught in modern medical schools. Short cuts are taken, ointments are prescribed, the condition is called an eczema and the patient is dismissed. Instead of such a course the lesion should have been examined with a magnifying glass, under natural light, and the objective signs and subjective symptoms closely studied and considered.

Anatomically there is one layer of the skin which is the seat of nine-tenths of all chronic skin troubles—the corium. The corium is important because it is this layer that contains the hair follicles, the sweat and oil glands as well as the superficial lymphatics. The respiration of the skin is controlled by the delicate machinery hidden in this layer; and here the secretory function is controlled, as well as the heat regulation. Thus a study of the anatomy and physiology of the skin makes for a better understanding of the course of skin diseases.

Treatment in most instances can be divided into two phases: constitutional and local. Constitutional treatment consists in the administration of general tonics, sedatives, purgatives, intestinal antiseptics, diuretics, animal extracts, antitoxins, vaccines, and serums. Local treatment is that which is applied externally, such as hot baths, hot compresses, hot plasters, soaps, ointments, dusting powders, lotions, oils, pastes, electrophysiotherapy, x-ray emanations, and radium.

Individual methods of treatment are much used in dermatology. What is good for one individual will react unfavorably upon some other, due to the sensitization of different people. Technique in treatment is very important, especially when electrophysiotherapy is used. Each patient's tolerance should be determined before prescribing too freely. By so doing, untoward reactions can often be prevented.

Adequate equipment is very important. The day is past when all a dermatologist needed was

* Read before the Dermatology and Syphilology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

a prescription pad. Equipment might well include a dermal x-ray, quartz rays, infra-red rays, high frequency current, radium, carbon dioxid snow, and an electrolytic outfit. A complete laboratory should be accessible. A dermatologist should be able to do Kahn tests in his office. His office should be lighted by natural light from at least two sides, and should be neat and clean.

The dermatologist should himself be free of skin diseases.

Spontaneous Gangrene of the Skin

There are different forms of skin gangrene, of which the spontaneous type is one of special interest. It follows in the wake of an injury, though at times it may develop spontaneously, as the term implies. Some writers maintain that it is due to germs, since organisms have been found in the lesions. It is a question, however, whether germs cause the primary infection or develop following a secondary invasion. The disease usually manifests itself in women. It is found in the second decade of life, and it is hard to differentiate from dermatitis factitia. Women as a rule give a history of a characteristic stigmata hysteria. Most cases start with an initial injury, such as a bruise, a scratch, or a burn, and are characterized by irregular sunken gangrenous areas which turn dark and finally slough away. A foul, ill-smelling, putrefying odor surrounds the patient.

REPORT OF CASE

Miss H., age 16; weight 130 pounds; height 5 feet 5 inches; student. Nutrition good. The early history of the patient was that of a nervous, temperamental child. At the age of three her mother had died, leaving her under the care of a woman who reared her in an abnormal environment. She gave a history of numerous accidents.

Upon complete laboratory examination no findings were reported. Upon physical examination I found the head and neck negative with exception of the gangrenous areas extending up on her left arm and to her left breast.

Her present illness began about three months previously, following an accident which occurred to her in the chemical laboratory. She had been doing an experiment which required the use of sulphuric acid, and accidentally dropped the bottle. The bottle broke, a part of its contents falling on her wrist, though not a very great area was burned. Spontaneously the gangrene started and in a very short time great sunken areas appeared above the point of the original injury until finally the whole arm was one mass of sunken superficial gangrene.

Itching, smarting and burning were present. With these was associated a sinking of the tissue, which was undermined. A gangrenous-like slough followed. With this was associated a putrid odor which permeated the room. She had no systemic disturbances and her temperature, pulse, respiration and glandular system were normal. The diagnosis was made upon the history, physical examination, progress, symptoms and course of the disease. The course was good in this case and the patient had an uneventful recovery, though keloidal scars followed.

In the treatment of spontaneous gangrene of the skin, internal and external methods should be used. If the patient is neurotic, bromids and hypnotics should be employed. If the condition is due to a functional disorder, symptomatic therapy is indicated.

This patient above referred to was treated as follows: hot packs of alkaline aqueous solutions were used until the sloughs disappeared. Then lotions followed by soothing and healing ointments were applied. An electric-light pack was used to promote granulation formation. Later, for cosmetic improvement, the scars and keloids were radiated. (One S. U. x-ray monthly, and the water-cooled quartz at weekly intervals.) Radium and carbon dioxid snow were used on the remaining areas. The keloids gradually disappeared and the final result was very gratifying.

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DISCUSSION

Ernest Dwight Chipman, M. D. (350 Post Street, San Francisco).—The author has well emphasized "the importance of dermatology in the scheme of general medicine." I do not quite gather whether he would have the general practitioner a better dermatologist, or the dermatologist a better internist, a more competent laboratorian and a more deft manipulator of various apparatus. Truly the practice of dermatology is becoming daily more intricate, and the general practitioner can scarcely be expected to keep pace with its problems without having had an intensive postgraduate training.

One can quite heartily subscribe to the statement that "diagnosis of skin diseases requires painstaking care" without going to the extreme of "a complete physical examination of every case." So many dermatologic patients complain of such relatively trivial affections, as warts, dandruff, and inpetigo, that a complete physical examination cannot be said to be indicated in every case.

In the obscure cases the utmost detail in history taking and investigation of possible etiologic factors must be made.

What the general practitioner as well as the dermatologist needs is a degree of poise which will withstand the pressure toward fads. He must realize the importance of diet without cutting all the calories from the warty and the gouty alike; he must recognize the dangers of focal infections without removing all the teeth and tonsils in sight; he may be equipped with and ready to use intelligently all sorts of mechanical and electrical apparatus, but he must avoid the obsession that every patient requires some sort of ray; he may take the time to do his own Kahn tests, his own blood counts, and his own urinalysis, but he will do well to farm out some of his chores in order that he may get acquainted with his patient.

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H. C. L. Lindsay, M. D. (54 North Madison Avenue, Pasadena).—The author's paper has many estimable points. His treatment of keloids by means of x-rays or radium in conjunction with freezing and rays from the water-cooled quartz lamp coincide with my own experience.

It is deplorable that the curricula of medical colleges devote so little time to the teaching of dermatology. This in itself explains the confusion that the general practitioner experiences when he has to make a diagnosis of any unusual skin condition. The art of making proper diagnoses, however, goes further than what can be gleaned from lectures and books: it is a natural gift, enhanced by seeing innumerable cases under the direct supervision of a painstaking master and teacher.

A careful perusal of medical literature will reveal that American physicians have not been overly backward in the study of dermatology. Internationally known Americans wrote treatises on diseases of the skin as early, I believe, as the more noted writers in England or the continent of Europe. I am not acquainted with the London Skin and Cancer Hospital, and would be interested in learning the names of the pioneers who did such noble work as members of its staff. Certain it is that some of our experts came from east of the Mississippi.

Sensitization may be produced by many things that in no way could be classified as proteins. P. Z. Hannzlik, in the *Journal of the American Medical*

Association, succinctly states his belief that "anaphylactic and anaphylactoid phenomena—collectively, the allergic phenomena—appear to rest on a common basis, namely, on disturbances in the physical and chemical (colloidal) mechanism of the blood and tissues. The study of allergic phenomena teaches that almost any agent may be the cause of a reaction."

The general practitioner can easily make himself more efficient in dermatology. Many are well equipped, but often lack the time to use the apparatus they possess. In many instances they neglect to get intimate histories, to do differential blood counts or the most ordinary laboratory routine. Stokes repeatedly points out that many cases of syphilis are not diagnosed because routine Wassermanns are not done. The provocative Wassermann and the blood sugar tolerance tests are not sufficiently used these days.

Spontaneous gangrene is hardly a disease *sui generis* and is most often due to hysterical mutilations. Dermatitis factitia is occasionally seen in those determined to gain entrance to the free wards of our hospitals. Malingerers during the late war feigned eruptions occasionally. Gas gangrene differs from this case in that it runs a septic temperature, and the bacillus is demonstrable.

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F. H. Stibbens, M. D. (146 Lake Street, Oakland).—The one great point brought out by the author is that too often a general practitioner who is doing general work fails to recognize his limitations, and persists in treating skin cases in which his diagnosis is extremely hazy.

The general practitioner seldom sees more than one or two dozen cases of skin disease in any one year, and many do not see that number. Hence he has nothing to fall back upon but the hazy recollection of what he learned in college many years ago, or he must take down his "Atlas of Skin Diseases" and compare his case with the pictures and endeavor to make his diagnosis from them.

All dermatologists have had a course of instruction in obstetrics, but how many of us feel that we are competent to handle a transverse presentation or do a cesarean section and still preserve the best interests of the patient?

The man who practices in the country must perforce handle to the best of his ability all cases that come his way, but even he, in many instances, can refer a case to a competent dermatologist.

Like Chipman, I cannot see the necessity of "a complete physical examination of every case." Several forms of skin disease are so self-evident to the trained observer that no material benefit to either the patient or the observer would accrue from such an examination. The same applies to laboratory work. Of what benefit would a complete blood count, Wassermann, urinalysis, and basal metabolism be in a case of scabies or ringworm?

Complete physical examination and laboratory work or reports have their value and should be used and considered thoroughly in all doubtful cases, but the clinical findings and symptoms should have first place.

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Doctor Lounsberry (closing).—I am happy to note that my paper has brought out the physical examination feature in discussion. My main object in bringing out that point was to encourage more of us in routine examination of our patients. This is especially true of the dermal system. Obviously, a complete examination of a mole or a dandruff case can be dispensed with. Nevertheless complete histories and physical examinations should be striven for, since through these more logical conclusions in diagnosis of difficult cases may be reached.

In answer to Doctor Lindsay's question I suggest that he look up in Garrison's history of medicine the subject of "Skin Diseases," pages 349, 350, 368, 581, 582. The early men of note in England were Erasmus Wilson, Tilbury Fox, Jonathan Hutchinson, James Paget and Covafy. To these add the continental group, Koposi, Hebra, Sabouraud, Unna, and Finsen.

INDUSTRIAL CORNEAL INJURIES*

By Raymond J. Nutting, M. D.
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THIS report of different types of corneal injuries is based on fourteen hundred consecutive cases. The importance of proper diagnosis and treatment in these cases in regard to disability and from the standpoint of the employee and employer will be discussed.

The subject of corneal injuries incurred by men in our various industrial pursuits could be treated with elaborate detail. The writer will confine his task to that of a discussion of his own professional observations and experiences with corneal injuries occurring in industrial activities.

Of a total of 1400 consecutive industrial corneal injury cases observed and treated by the writer in his private practice, 1382 of the injuries were of the nonpenetrating type, while eighteen were of the penetrating.

A meager history of this latter group will be given. There were six cases of severe lacerations; eleven cases caused by intra-ocular foreign bodies, and one case due to California thistle. It was necessary to enucleate in four of the above patients. Two of the eyes were removed immediately after examination, as they were beyond medical or surgical relief. The other two were removed later because of the danger of sympathetic ophthalmia affecting the good eye. In five of the patients good protective vision was obtained after the removal of the traumatic cataract; while in the remaining nine cases the patient was discharged without disability.

In examining the records of the 1382 nonpenetrating corneal cases, it was naturally found that they possessed various and interesting histories. Iron and rust scales in various forms were responsible for 64 per cent of the cases; abrasions accounted for 17 per cent; burns 6.6 per cent; lime 3 per cent; lacerations 1.8 per cent; concrete 1.7 per cent; sand and rock 1.3 per cent; wood 1.2 per cent; glass 1 per cent; acid .8 per cent; cinders .4 per cent; sulphur .3 per cent. Powder and likewise bone each accounted for one case. The above percentages when considered in respect one to the other appear quite normal. We are living in an age of iron and steel, and men in our industries are constantly coming into contact with the materials.

As regards the corneal position of the various injuries, it was found that 1111 were outside the pupillary area, and 271 within.

The above data although interesting are not so vital either to the patient or to the employer, nor, incidentally, to the physician, as the matter of treatment. Here we may consider the length of treatment given the various patients.

In arriving at the length of treatment, the patients were divided into direct and indirect groups, meaning by indirect the referred cases. The average length of treatment given the injured in direct cases was 1.53 days; while the time consumed in

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

the indirect cases was 3.89 days. There were 648 direct and 723 indirect cases. Eleven severe indirect cases requiring from one month to a year's treatment were not considered. The usual first-aid treatment in the indirect cases was not taken into consideration in arriving at these conclusions.

The diagnosis and kind of treatment of these industrial cases is important. It is vital that a true and accurate history of the injury be obtained; and this having been obtained, the examination of the injury itself can be taken up. To do this it is imperative that we have a light of the proper intensity and a suitable magnifying lens, otherwise small yet disturbing foreign bodies will not be discovered. Likewise minute abrasions, lacerations, and various small penetrating wounds, which if not recognized and treated at an early stage, might later not only cause disability but even loss of the eye itself. In this connection, it is recommended that a concentrated alkaline solution of fluorescein (Gruebler's fluorescein 2 per cent; carbonate of soda 3.5 per cent) be dropped on the cornea. That portion of the cornea deprived of its epithelium will be colored green, likewise any portion of the epithelium that may be diseased, while the healthy epithelium will remain unaffected.

If there is any doubt of the existence of a foreign body within the eye, a careful x-ray examination is in order.

The technique for removing the foreign body from the eye must be given careful consideration. First, the cornea is thoroughly anesthetized (writer uses butyn 2 per cent, or holocain). Then the foreign body itself is completely removed as well as its stain, with a suitable small spud or curet, paying at all times proper respect to the normal and healthy epithelium. Usually the general man is quite proficient in removing the foreign body, but is rather remiss in removing the stain itself, which is the underlying cause for the increased length of treatment referred to herein above. It is urged that great care be given to proper sterilization of all instruments.

After the removal of the foreign body and of any stain present, the eye is thoroughly cleansed with either saturated boric acid water or normal salt solution. Some antiseptic solution is then instilled (the writer uses 1 per cent mercurochrome) and in the event the curettement has caused considerable loss of epithelium, a 1 per cent holocain and adrenalin ointment is instilled, followed with a proper pad. The use of a good pad is considered by the writer as the most necessary and important treatment afforded the patient after the removal of the foreign body. In all forms of corneal injury, with few exceptions, it is essential that a pad be used. Too often the pad is not used, thereby again affecting the length of time of treatment.

Lime burns are very often neglected, and especially so by the patient. After flushing out the eye, or eyes, with water, such patients should then consult a physician. Unless the doctor completely removes all of the lime much damage, trouble and very lengthy treatment results. The lids should be everted and all particles carefully removed. After more washing the eye is then treated with neutral ammonium tartrate 5 per cent, as advocated by Barkan of San Francisco.[1] The results that are obtained by this method are surprising. Since using it the writer has not had one case of disability, whereas prior thereto he had some very severe cases which when first seen gave indications of considerable permanent disability.

With reference to burns, especially of the acid or alkali type, thorough washings with salt solution should be made, followed by castor oil instillation and pad. Any additional treatment is necessarily dependent upon the severity of the case.

From the standpoint of prevention, a greater use of goggles is suggested. The employer should also placard his shops with signs cautioning employees not to try to remove objects from the injured eyes of fellow workmen. In nearly every instance this act, although motivated by a kindly and sympathetic feeling, results in infection, thereby greatly lengthening the treatment. In this connection I close by quoting E. C. Ellett, M. D., of Memphis:[2] "It is much wiser to adopt precautions although somewhat troublesome than to receive an accident which may impair one's sight, and cause, not only pain, suffering, loss of time and expense, but permanent disability, unhappiness, and decrease of earning power."

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THE LURE OF MEDICAL HISTORY

THE FIRST MEDICAL PUBLICATION IN THE UNITED STATES

By Frank H. Rodin, M. D.
San Francisco

THE first printing press in America was established at Cambridge, Massachusetts, in 1639, and was under the control of Harvard College. The first publications were the "Freeman's Oath" and "An Almanack," which appeared in the same year. In the following year the first book published in the Colonies appeared: "The Psalms in Metre, Faithfully translated for the Use, Edification, and Comfort of the Saints in publick and private, especially in New England," commonly called "The Bay Psalm Book." The printing of books was regarded with suspicion by the authorities, as it seemed "to open the door of heresy," and in 1662 two "Licensers of the Press" were appointed. Strict supervision was maintained over everything that was printed. In this respect they did not differ greatly from us of a more modern age. The majority of the books published were expositions of Puritanical theology. Two years later a law was passed prohibiting the establishment of any printing press in the colony of Massachusetts, except at Cambridge. In 1674, however, this law was suspended and the general court, at the session in May of that year, passed the following order: "Whereas there is now granted that

BRIEF RULE

To guide the Common-People of

NEW-ENGLAND

How to order themselves and theirs in the

Small Pocks, or Measels.

THe *small Pox* (whose nature and cure the *Measels* follow) is a disease in the blood, endeavouring to recover a new form and state.

2. This nature attempts---1. By Separation of the impure from the pure, thrusting it out from the Veins to the Flesh.---2. By driving out the impure from the Flesh to the Skin.

3. The first Separation is done in the first four dayes by a Feaverish boyling (Ebullition of the Blood, laying down the impurities in the Fleshy parts which kindly effected the Feaverish tumult is calmed.

4. The second Separation from the Flesh to the Skin, or *Superficies* is done through the rest of the time of the disease.

5 There are several Errors in ordering these sick ones in both these Operations of Nature which prove very dangerous and commonly deadly either by overmuch hastening Nature beyond its own pace, or in hindering of it from its own vigorous operation.

6 The Separation by Ebullition in the Feaverish heat is over heightned by too much Clothes, too hot a room hot *Cordials*, as *Diascordium*, *Galcons powder* and such like, for hence come *Phrenzies*, dangerous excessive sweats, or the flowing of the Pocks into one overspreading sore, vulgarly called the Flox.

7. The same seperation is overmuch hindred by preposterous cooling that Feaverish boyling heat, by *bloodletting*, *Glysters*, *Vomits*, *purges*, or *cooling medicines*. For though these many times hasten the coming forth of the *Pox*, yet they take away that supply which should keep them out till they are ripe, wherefore they sink in again to the deadly danger of the sick.

8. If a *Phrensie* happen, or through a *Plethory* (that is fulness of blood) the Circulation of the blood be hindred, and thereupon the whole mass of blood choaked up, then either let blood, Or see that their diet, or medicines be not altogether cooling, but let them in no wise be heating, therefore let him lye no otherwise covered in his bed then he was wont in health: His Chamber not made hot with fire if the weather be temperate, let him drink small Beer only warm'd with a Toft let him sup up thin *water-gruel*, or *water pottage* made only of Indian Flour and water, instead of *Oat-meal*: Let him eat *boild Apples*; But I would not advise at this time any medicine besides. By this means that excessive *Ebullition* (or boyling of his blood) will by degrees abate, and the Symptoms cease; If not, but the blood be so inraged that it will admit no delay, then either let blood (if Age will bear it) or else give some notably cooling medicine, or refresh him with more free Air.

9. But if the boiling of the blood be weak and dull that there is cause to fear it is not able to work a Separation, as it's wont to be in such as have been let blood, or are fat, or Flegmatick, or brought low by some other sickness or labour of the (*Gonorrhea*) running of the Reins, or some other Evacuation: In such Cases, *Cordials* must drive them out, or they must dy.

10. In time of driving out the *Pocks* from the Flesh, here care must be had that the *Pustules* keep out in a right measure till they have attain'd their end without going in again, for that is deadly.

11. In this case take heed when the *Pustules* appear whilst not yet ripe, least by too much heat there follow a new *Ebullition* (or Feaverish boyling) for this troubles the driving out; drives back the separated parts into the blood, or the Fleshy parts overheated are disabled from a right suppuration, or lastly the temper of the blood and tone of the Flesh is so perverted that it cannot overcome and digest the matter driven out.

12. Yet on the other hand the breaking out must not be hindred, by exposing the sick unto the cold. The degree of heat must be such as is natural agrees with the temper of the fleshy parts: That which exceeds or falls short is dangerous: Therefore the season of the year, Age of the sick, and their manner of life here require a discreet and different Consideration, requiring the Counsel of an expert Physitian.

13. But if by any error a new *Ebullition* ariseth, the same art must be used to allay it as is before expresst.

14. If the *Pustles* go in and a flux of the belly follows (for else there is no such danger) then *Cordials* are to be used, yet moderate and not too often for fear of new *Ebullition*.

15. If much spitting (*Ptyalismus*) follow, you may hope all will go well, therefore by no means hinder it: Only with warm small Beer let their mouths be washed.

16. When the *Pustles* are dryed and fallen off purge well, especially if it be in *Autumn*.

17. As soon as this disease thereof appears by its signs, let the sick abstein from Flesh and Wine, and open Air, let him use small Beer boyled with a Toft for his ordinary drink, and moderately when he desires it. For food use *water-gruel*, *water-pottage*, and other things having no manifest hot quality, easy of digestion, boild Apples, and milk sometimes for change, but the coldness taken off. Let the use of his bed be according to the season of the year, and the multitude of the *Pocks*, or as found needful.

BOSTON, Printed and sold by *John Foster*. 1677.

are wont. In Summer let him rise according to custome, yet so as to be defended from heat and cold in Excess, the disease will be the sooner over and the sick better, for being kept in bed nourisheth the Feaverish heat and makes the *Pocks* break out with more painful inflamation.

19. In a colder season and breaking forth of a multitude of *Pustules*, forcing the sick to keep his bed, let him be covered according to his custome in health, a moderate fire in the winter being kindled in his Chamber, morning and Evening; neither need he keep his Arms always in bed, or ly still in the same place, for fear least he should sweat which is very dangerous especially to youth.

20. Before the fourth day use no medicines to drive out, nor be too hasty with the sick; for by how much the more gently the *Pustules* do grow, by so much the fuller and perfecter will the Separation be.

21. On the fourth day a gentle *Cordial* may help once given.

22. From that time a small draught of warm milk (not hot) a little dasht with *Saffron* may be given morning and evening till the *Pustules* are come to their due greatness and ripeness.

23. When the *Pustules* begin to dry and crust, least the rotten vapours strike in and which sometimes causeth sudden death; Take morning and evening some temperate *Cordial* as four or five spoonfuls of *Malago Wine* tinged with a little *Saffron*.

24. When the *Pustules* are dryd and fallen off, purge once and again, especially in the *Autumn Pocks*.

25. Beware of anointing with *Oils*, *Fatts*, *Ointments*, and such defensives, for keeping the corrupted matter in the *Pustules* from drying up, by the moisture they receive into the Flesh, and so make the more deep Scarrs.

26. The young and lively men that are brought to a plentiful sweat in this sort, about the eighth day the sweat stops of it self, by no means afterwards to be provoked again; the sick thereupon feels most troublesome distrest and anguish, and then makes abundance of water and so dyes.

Few young men and strong thus handled escape, except they fall into abundance of spitting or plentiful bleeding at the nose.

27. Signs discovering the Assault at first are beating pain in the head, Forehead and temples, pain in the back, great sleepiness, glistring of the eyes, shining glimmerings seem before them, itching of them also, with tears flowing of themselves, itching of the Nose, short breath, dry Cough, sneezing, hoarseness, heat, redness, and sense of pricking over the whole body, terrors in the sleep, sorrow and restlessness, beating of the heart, Urine sometimes as in health, sometime filthy from great *Ebulition*, and all this or many of these with a Feaverish distemper

28. Signs warning of the probable Event. If they break forth easily, quickly, and soon come to ripening, if the Symptomes be gentle, the Feaver mild, and after the breaking forth it abates: If the voice be free, and breathing easie, especially if the Pox be red white distinct, soft few, round, sharp top'd, only without and not in the inward parts; if there be large bleeding at the nose. These signs are hopeful

29. But such signs are doubtful, when they difficultly appear, when they sink in again, when they are black, blewish, green, hard, all in one, if the Feaver abate not with their breaking forth, if there be Swooning, difficulty of breathing, great thirst, quinsey, great unquietness, and it is very dangerous, if there be joyn'd with it some other malignant Feaver, called by some the pestilential Pox: the *Spotted Feaver* is oft joyned with it.

30 Deadly Signs if the *Flux* of the *Belly* happen, when they are broke forth, if the Urine be bloody, or black, or the *Ordure* of that Colour; Or if pure blood be cast out by the Belly or Gumms: These Signs are for the most part deadly.

These things have I written Candid Reader, *not to inform the Learned* Physitian *that hath much more cause to understand what pertains to this disease than I, but to give some light to those that have not such advantages, leaving the difficulty of this disease to the* Physitians *Art, wisdom, and Faithfulness; for the right managing of them in the whole Course of the disease tends both to the* Patients *safety, and the* Physitians *desired Success in his Administration: For in vain is the* Physitians *Art employed, if they are not under a* Regular Regiment. *I am, though no* Physitian, *yet a well wisher to the sick: And too, before intreating the Lord to turn our hearts, and stay his hand, I am*

A Friend, Reader to thy Welfare,

2. 11, 167$\frac{7}{8}$.

Thomas Thacher.

there may be a printing Presse elsewhere than at Cambridge; for the better regulation of the Presse it is ordered and Enacted that the Rev. Mr. Thomas Thacher and Rev. Increase Mather, of Boston, be added unto the former Licensers, and they are hereby impowered to act accordingly," and permission was given to John Foster to set up a printing press in Boston, then a town of about five thousand people.

One of Foster's early publications and the first contribution of a Colonial practitioner to the medical literature was Rev. Dr. Thomas Thacher's "Brief Rule to guide the Common People of New-England how to order themselves and theirs

in the Small Pocks, or Measels," and was published in double column, on one side, as a poster, and was fifteen and one-half by ten inches. An epidemic of smallpox prevailed in Boston during the years 1676-1678, and this was probably the reason for Doctor Thacher's publication. The accompanying facsimile has been made from a photostat reproduction made from an autotype of the original in the possession of the Library of the College of Physicians of Philadelphia. A reprint of the publication, made in 1702, was a little pamphlet of eight pages, five and one-half by three and one-half inches.

Doctor Thacher was born in England May 1, 1620. His father, the Rev. Peter Thacher, was a minister at Sarum (Salisbury). Thomas received a good school education and his father planned to send him to Oxford or Cambridge. For some unknown reason he refused and at the age of fifteen emigrated to New England. Soon after his arrival he continued his studies under Dr. Charles Chauncy, an M. D. of Cambridge, pastor of the church at Scituate, and probably the most learned man at that time in the Colonies. From Chauncy he no doubt received some of his medical training. Doctor Chauncy became the second president of Harvard in 1654.

It was common to find, in the New England Colonies, the frequent combination of the offices of minister and physician, or even minister, teacher and physician, in one and the same person. Many Puritan divines, before going to the Colonies, acquired as much of a medical training as conditions would permit. Following this practice, Thacher, who was ordained a minister at Weymouth, June 2, 1644, not only preached but also practiced medicine. In 1677 he removed to Boston, where he was installed as the first minister of the Old South Church, February 16, 1670. In this position he also devoted a great deal of his time to the practice of medicine, and was regarded by the colonists as one of the eminent physicians of Boston. He was also a scholar in Arabic and composed a Hebrew lexicon and wrote a catechism. He was taken ill after visiting a patient, and died of a fever October 15, 1678, at the age of fifty-eight years.

Commenting on Doctor Thacher's early publication, Doctor Handerson has said: "That the leaflet is only a compendious English translation of a portion of the writings of Sydenham, a translation in which the original is followed so closely as to enable one to determine even what edition of the author the translator had before him, is no reflection upon the motives of Doctor Thacher, who not only disclaims all originality, but takes pains to inform the reader that he is 'no Physitian.' That he selected a good model is rather to his credit."

490 Post Street.

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CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

IRRADIATION IN MYELOID LEUKEMIA, WITH MASSIVE SPLENOMEGALY*

REPORT OF A CASE

By W. T. Cummins, M. D.
San Francisco

G. B., service of Dr. Philip King Brown, a Portuguese, male, age 43, painter. Admitted February 28, 1925. Family history unessential. He stated that five months ago he caught a cold and that two months before he went to a doctor for pleurisy, which was cured. During the five months he lost twenty-four pounds in weight. One week prior to admission he went to bed, having contracted another cold. Physical examination revealed a moderately well-developed physique. Teeth were in very poor condition. Tonsils were slightly enlarged and congested. The left upper abdominal quadrant was filled with a slightly tender mass, which was diagnosed as spleen. Liver appeared normal. No ascites present. Temperature, pulse, and respirations normal. Blood pressure, 122/76. Urine, slight trace of albumin. Blood: hemoglobin, 60 per cent; erythrocytes, 2,960,000; leukocytes, 320,000; myelocytes, 13 per cent. Blood Wassermann negative. Roentgenologic examination revealed an enlarged left kidney as well as spleen. Basal metabolic rate plus 54 per cent, and after two x-ray treatments to spleen, thighs, and legs it fell to plus 28 per cent. Diagnosis, myeloid leukemia. He was discharged improved on April 10, after forty-two days in the hospital. Over a period of fifteen days, with four x-ray treatments to spleen, thighs and legs, the leukocytes were reduced to 5800, and the myelocytes to 3 per cent. Hemoglobin fell to 50 per cent, but the erythrocytes were increased by one million. The minimum leukocytic count was noted three weeks after the last treatment. He felt well for several months after leaving hospital and gained eighteen pounds in weight. Then he began to lose strength and felt a dragging sensation in left side.

He returned for examination on March 3, 1926. Leukocytes 87,000, and myelocytes 14 per cent. Over a period of twenty-one days, as an out-patient, he received six x-ray treatments to spleen, thighs, legs, and sternum. The minimum leukocytic reduction to 8100 and 3 per cent myelocytes was noted four weeks after the last treatment. A physical betterment was maintained for several months, when his condition again began to retrogress.

He was readmitted to hospital on December 2, 1926. The spleen appeared larger than upon first examination. Leukocytes 194,000 and myelocytes 8 per cent. He was feeling fairly well and, expressing a desire to go home, he was discharged after two days in hospital. During the next eight months leukocytic counts ranged from 134,000 to 246,000, and myelocytes 8 to 11 per cent. In July 1927, his condition having materially retrogressed, he was again admitted to hospital (27th). Over a period of six weeks he received twenty-seven x-ray treatments to ribs, sternum, forearms, thighs, and legs. The minimum leukocytic count of 8700 was obtained on the last day of treatment (September 15). He was discharged improved on that date. He was able again to return to work for a period of about six weeks.

On November 6 while in bed he was seized with dyspnea, and five days later returned to hospital. Examination revealed the spleen to be enlarged almost to right iliac crest. Leukocytes, 119,000. Fifteen x-ray treatments to spleen, sternum, forearms, thighs, and legs were given over a period of seven weeks. Within

* Read before the San Francisco County Medical Society, April 4, 1928.

two weeks leukocytes declined to 30,000 and rose again to 72,000 toward the end of the period. A rapid decline eventuated in death on January 15, 1928. A total of fifty-two x-ray treatments in four series were given, the technical details and comments being omitted.

Autopsy six hours after death. Gross and histopathological diagnosis: Pulmonary edema, passive congestion and hypostatic pneumonia; gelatinous degeneration of subepicardial fat; chronic interstitial myocarditis, dilatation and chronic mural endocarditis; hemoperitoneum; massive splenomegaly of myeloid leukemia; passive congestion, portal sclerosis and leukemic infiltration of liver; chronic cholecystitis; congestion of gastro-intestinal tract; chronic interstitial pancreatitis; chronic nephrosis; lipoidal changes in adrenals; chronic bronchial, lumbar and mesenteric lymphadenitis; chronic interstitial thyroiditis; leukemic infiltration of rib marrow.

Spleen: weight, 10,110 grams (22¼ pounds); dimensions, 42 x 27 x 15 centimeters. Liver: weight, 1840 grams. An extensive review of literature has failed to reveal in leukemia a splenomegaly of these dimensions and weight.

Southern Pacific General Hospital.

POLYCYTHEMIA COINCIDENT WITH ACTIVE PULMONARY TUBERCULOSIS

REPORT OF CASE

By Henry L. Holzberg, M. D.
San Francisco

A THOROUGH search of the available literature reveals no reported cases of polycythemia in human beings suffering from pulmonary tuberculosis. However, there have been reported a number of cases of polycythemia in which a tuberculous spleen was found. As we know, primary tuberculosis of the spleen is extremely rare, whereas secondary tuberculosis of the spleen is fairly common.

REVIEW OF THE LITERATURE

In 1899 Rendu and Widal [1] described a symptom complex, including tuberculosis of the spleen, polycythemia without leukemia and with cyanosis. They attributed this combination to the splenic condition. This case was of eight years' duration and showed no pulmonary or glandular involvement. The red cells numbered 6,200,000 and the white cells 6000. Cyanosis was present. At autopsy the spleen weighed 3780 grams. Evidences of tuberculosis were found in the spleen, liver, right lung, mesenteric glands, pancreas, and kidneys. This case is comparable to the case reported here.

In 1904 Bayer [2] reported a series of nine operative cases of polycythemia with seven recoveries, including one of his own, and nineteen autopsy cases. He stressed splenectomy in these cases. His patient recovered after splenectomy. It was of six weeks' duration. The red blood cell count was 6,000,000 and the white cell 7500. The hemoglobin was 40 per cent. In this patient there was no pulmonary or glandular involvement. There was no cyanosis.

In 1912 Winternitz [3] summarized fifty-one cases in an article on tuberculosis of the spleen. The red blood count was given in twenty-six cases. It was normal in nine (35 per cent); below normal in eleven (42 per cent); above normal in six (23 per cent). In acute generalized tuberculosis the spleen is usually enlarged. In pulmonary tuberculosis of adults it is rarely enlarged, and it is usually atrophied and diminished in volume. In these fifty-one cases, a note on the lungs was found in forty cases. Of these latter forty cases there were negative clinical findings in twenty (50 per cent); a quiescent lesion was found in three cases (7½ per cent); signs of pulmonary involvement developed in three cases (7½ per cent); two cases showed chronic pleurisy (5 per cent); and five cases showed extensive pulmonary involvement (12½ per cent). In the latter five cases three of them developed signs of pulmonary involvement apparently secondary to the spleen.

Polycythemia was first described as a definite disease by Vaques in 1892. In 1903 Osler called general attention to this condition. Since that time many cases have been reported. Many etiologic suggestions have been made. Among these may be mentioned splenic tuberculosis and the theories of blood stasis, the extreme viscosity of the blood being a marked phenomenon in these cases of polycythemia.

In 1914 Douglas and Eisenbray [4] reported a case of tuberculous spleen and polycythemia; autopsy showed small, discrete tubercles in the lungs.

Weiss [5] in 1924 reported a case of polycythemia in which the spleen was not enlarged, but in which x-rays showed infiltrated lungs. No mention of tuberculosis was made.

Antonelli [6] in 1927 reported a 62-year-old male who had polycythemia rubra and an incomplete Addisonian syndrome with an evident carcinomatous neoplasm of the upper lobe of the right lung, with metastases. No evidences of tuberculosis present.

REPORT OF CASE

R. S., age twenty-one, American-born Hebrew, first consulted me February 1922. His complaint at that time was hemorrhage.

His family history was negative except his first cousin on his father's side gave history of an occasional prolonged bleeding following very slight cuts, such as razor cuts, and epistaxis. There was no other family history of bleeders, hemophilia, polycythemia, tuberculosis, carcinoma, syphilis, jaundice, or insanity.

Past History.—Born in San Francisco. Occupation: Real estate salesman. Denied all diseases except varicella. No venereal history. He used no coffee or tea, alcohol, tobacco or drugs. There had been no previous operations.

Patient claimed he had always been well, strong and healthy. He was very active in football, and during a scrimmage his chest was apparently injured when fourteen men were piled on top of him.

Within twenty-four hours he suffered from a severe pulmonary hemorrhage. The doctor whom he consulted prescribed hot baths, but his hemorrhages continued. He went to a sanatorium, where he remained for six months. He was told he had pulmonary tuberculosis. Several sputum tests were made, all of which proved negative. No x-ray examinations were made.

After leaving the sanatorium he took unusually good care of himself and gained in weight. He noticed, however, whenever he sustained a slight cut that the

flow of blood was stopped only after considerable difficulty.

Upon blowing his nose during a coryza in February 1922, a severe hemorrhage ensued. His physician found diseased tonsils, and advised removal.

Several days later the writer was called in to see the patient. The hemorrhages had become more frequent and profuse. Patient claimed that he could feel a sensitive spot on the left side of his larynx whenever the blood trickle started and that within a few minutes a considerable hemorrhage, usually a pint or more of blood would be spat out without any effort. As a rule no clots were present.

Examination at that time showed a full-blooded young man raising small amounts of blood on any slight exertion, such as coughing, sneezing, etc. Temperature 101 toward evening, and a rapid, full pulse of 120. Respirations were not increased; no chills or pain; no history of vomiting, hematemesis, or tarry movements; tongue dry and coated; tonsils diseased, with the crypts full of cheesy matter. At that time there was no cyanosis. His chest showed active bilateral tuberculosis. X-ray examinations showed an old tuberculous condition at the left top. The blood count showed 96 per cent hemoglobin; 4,800,000 red cells with normal morphology; 10,800 white cells with 78 per cent polymorphonuclears. The coagulation time was fifteen minutes, whereas the normal is four to five minutes. The Wassermann and Noguchi control tests were negative. Urinalysis negative. No red blood cells found. Stools were negative for occult blood.

The hemorrhages were controlled within five days. Pituitrin intramuscularly and calcium chlorid intravenously were used. All symptoms cleared up. On February 3, 1922, patient was examined by Doctor Tobriner, who reported finding a deviated septum, adenoids, bad tonsils, and negative larynx. No varices, ulcers or bleeding points were seen. Fluoroscopy by Doctor Bryan on March 4, 1922, showed a question of old tuberculosis of the left top and no roentgen evidence of pathology in the gastro-intestinal tract.

Patient was given a series of calcium cacodylate injections intravenously. These brought his coagulation time down to normal. In November 1922 he brought up a small amount of blood while coughing. His coagulation was practically normal up to April 1923.

Patient was again seen on April 11, 1923. He contracted a slight cold, and during a coughing spell brought up several ounces of bright red blood. During the next three weeks a certain amount of oozing with an occasional clot occurred. The usual remedies were used, including calcium chlorid, pituitrin, thromboplastin (Squibb). On April 16, 1923, his blood coagulation time was normal, four minutes and fifteen seconds. Despite this, the bleeding continued off and on. There was no fever. Patient was moved to the Mount Zion Hospital in an ambulance.

While in the hospital the patient ran a slight fever toward evening. His blood count now showed 75 to 80 per cent hemoglobin; 5,000,000 red blood cells; the white count varied from 11,000 to 16,000; the polymorphonuclears, on entrance, were 82 per cent, and later dropped to 52 per cent. The coagulation time was four and one-half minutes. The urine was negative. X-ray graphs showed pulmonary tuberculosis evidenced by coarse mottling of both apices. Sputum examination revealed a few tubercle bacilli in two out of four samples. Patient was given normal horse serum intramuscularly. Slight amount of blood was brought up during the first five days. After that no further bleeding occurred, and the temperature became normal.

In the sputum examination the long type of acid-fast tubercle bacilli predominated in the positive specimens. His red blood cell count was over 5,000,000, despite considerable loss by hemorrhage. There was a beginning suggestion of cyanosis on the face, ears and fingers. A tendency toward clubbing was noticed.

Patient was kept under observation and got along very well for the rest of the year. His coagulation time was around five minutes. His weight was 190 to 192. In January 1924 he had an attack of severe pain in his upper abdomen. There was a slight amount of fever and considerable vomiting of bile-stained matter. There were no hemorrhages.

In February 1924 the ears and throat were again examined by Dr. A. Houston. A ruptured right ear drum with diminished hearing, very badly infected tonsils, marked granular pharyngitis, and chronic rhinitis were evident. The larynx showed secondary catarrhal inflammation; the laryngeal vessels were large and engorged, and could easily rupture with a cough or sneeze. X-ray examination of the sinuses was negative.

From February 1924 up to July 1926 patient was in fairly good condition. He watched his temperature and there was no elevation except when he contracted a cold. Coughing would always be accompanied by small amounts of blood-stained mucus, but no actual hemorrhages occurred in this interval.

In July 1926 patient contracted a cold. One week later suddenly vomited more than a quart of blood. This was the first time he had ever vomited blood. During the first week he refused to come to the hospital, and in addition to the remedies used before, fibrogen and coagulen were used. There was very little improvement and the patient continued to vomit large quantities of blood. It is estimated he lost at least 3500 cc. during this week.

Physical examination at that time showed a well-developed and nourished young man. The cheeks were flushed and the skin slightly cyanosed, otherwise negative. Sclerae negative. Mucous membranes negative. Pupils equal; regular; circular; reacted normally to light and accommodation. Ophthalmoscopy revealed congested retinae and engorged pulsating vessels over both disks. Eye muscles, ears, nose apparently negative. Lips cyanosed. Teeth apparently in good condition. Tongue clean, moist, protruded in median line without tremor. Tonsils badly infected, hypertrophied and congested. Pharynx congested. Superficial lymph glands negative. No supraclaviculars or epitrochlears. Thyroid apparently negative.

Chest wall was negative; nipples likewise. Lungs showed roughened breath sounds with higher pitched and prolonged expiration found over both apices and both upper lobes, left more than right, posteriorly more than anteriorly. Similar findings in scattered areas throughout the rest of the lungs. Many moist râles. Vocal and tactile fremitus increased. Marked dullness around both lung roots. Both bases moved well and equally. No evidences of pleurisy or pleural effusion. Heart apex impulse not seen nor felt. Area of cardiac dulness within normal limits, extending to midclavicular line in fifth space; second rib above; right border under sternum. Sounds regular; good quality; A2 equals P2, neither abnormal; no murmurs. Pulse rate 90 to 110. Radials equal; regular; good volume; artery walls soft. Blood pressure: systolic, 90 to 108; diastolic, 60. Back negative. No limitation of motion. No kyphosis.

Abdomen smooth, level, soft, symmetrical, tympanitic throughout. No masses, tenderness or herniae. Not tender at either costovertebral angle. Liver dullness extended in midclavicular line from sixth rib to costal margin; edge not felt. Spleen and kidneys not felt. Inguinal glands negative.

Genitalia negative. Anus negative. Rectal examination negative.

Extremities negative, except for cyanosis of the finger nails with slight tendency to clubbing. No varices. No purpuric spots or petechiae.

Reflexes active. Knee, ankle, abdominal superior and inferior, cremasteric, brachial, biceps, triceps present and equally active on both sides. No ankle or patellar clonus. No Babinski, Gordon, Oppenheim, Chvostek or Trousseau. No Romberg.

The laboratory findings were as follows:

Catheterized urine negative; no red blood cells seen. Stool negative for occult blood. Coagulation time, two

minutes. Bleeding time, two and one-half minutes. Sputum was blood-stained and showed numerous acid-fast bacilli. Blood count showed 84 per cent hemoglobin; 5,600,000 red blood cells; 8500 white blood cells, with 71 per cent polymorphonuclears.

Five per cent glucose and 2 per cent soda was given by Murphy drip. This was in addition to the usual hypodermics. Morphin sulphate was freely used. Ice-bags were kept on the chest and abdomen.

On July 2, 1926, Dr. H. C. Moffitt saw the patient in consultation. He thought of a possible tuberculous spleen. He suggested removing the ice bags and removing the soda from the drip. He also suggested a platelet count and x-ray later.

During the next four days patient gradually improved and all vomiting of blood ceased. The laboratory findings were roughly the same. The platelet count varied from 225,000 on July 4, 1926 to 375,000 on August 3, 1926. Patient had a slight elevation of temperature from July 6, 1926 to August 1, 1926. No fever at any other time.

Fluoroscopy by Dr. L. Bryan on August 3, 1926, showed coarse mottling throughout both the left lung and at the right tip with beginning fibrosis; no evidence of organic lesion in the stomach.

During the next six weeks patient gradually improved. He was up and around and developed a cough with some bloody sputum at that time. This responded to a few 3.0 cc. injections of 10 per cent calcium chlorid intravenously. His weight at that time was 173, and one month later 182.

Patient was again seen in April 1927. He was feeling well and weighed 200 pounds. Cyanosis was more marked on the cheeks and fingernails; the latter being definitely clubbed. Patient decided to go to Long Beach for a few months.

Was seen again September 15, 1927. Weight was 206. General feeling was good. Chest showed definite evidences of tuberculous involvement.

About the middle of October the patient had a slight cold and expectorated two clots of blood. He was not sure whether he brought this up or whether it came out of the back of his throat. However, there was no coughing, vomiting, or fever.

Ten days later he had a similar experience. He brought up about two ounces of bright frothy blood. Following this he began to have fever daily, reaching as high as 101 degrees either in the morning or evening. There were no chills or sweats, and no further hemorrhages. There was no coughing. Because of elevation of temperature with rapid pulse and high rate of respiration he was brought to the hospital by ambulance.

Positive findings at that time revealed a temperature up to 101, with pulse averaging 110 to 136, and respirations from 36 to 44. He was somewhat cyanosed. Tonsils were hypertrophied and congested. Tongue had a deep, dry, brown coat. Chest showed evidences of active tuberculosis, especially in the left upper lobe, with increased resonance, harsh breath sounds with prolonged high-pitched expiration and numerous râles. Signs were less marked on the left side. There was no evidence of fluid. Fingers were clubbed, and finger nails were markedly cyanosed. Abdomen was negative. Spleen was not palpable.

Course in Hospital.—Patient was very difficult to manage, refused coöperation, and did not like any of the treatment. He refused hypodermics and these had to be forced. At times he found it quite difficult to void urine and did not do so until threatened by catheterization.

Laboratory examination at this time showed hemoglobin 95 to 103, with red blood cells always over 5,000,000, with no leukocytosis. His bleeding time was three minutes; coagulation time, four minutes (apparently normal). Stools positive for occult blood. Sputum and blood clots were loaded with acid-fast bacilli. The urine was negative, except for a very slight trace of albumin. No blood cells.

After being in the hospital four or five days condition apparently became normal. Temperature was normal and subnormal. Pulse dropped to 80; respirations to 20. He seemed to feel better. Chest condition seemed improved and patient was allowed to go up on the roof esplanade, and thought of returning to his home.

On November 11, 1927, patient awoke suddenly at 1 a. m. with a very sharp pain in the upper left half of his chest. A sudden gush of blood came up; at least a pint must have been brought up. Later on in the morning he had a chill, with temperature rising to 104 degrees. His pulse became very rapid and thin (146). Respirations were 45. From that time on patient ran an elevated temperature daily; it occasionally touched normal, but averaged 100 to 101 every day. At times his temperature seemed to be elevated in the morning and again in the evening. His pulse remained rapid, averaging 110. Respirations, around 40. Most of the time his blood pressure was systolic 100 to 110; diastolic 80, although at one reading it was 160 systolic and 80 diastolic. Patient continued to bring up small quantities of blood for a few days. Some relief apparently was obtained from calcium chlorid intravenously and hemostatic serum by mouth. At times the patient became irrational, especially at night, and restraint would be necessary. He complained of severe headaches. He seemed to be troubled a great deal with a continual sensation of nausea which seemed to be from some irritation in the back of the throat. However, no treatment locally was of any benefit. Mercurochrome was applied to the tonsils.

Numerous consultations were had. On November 20, 1927, consultation with Doctor Jellinek, who recommended quiet, rest, observation, and x-ray. X-ray the following day showed extensive coarse mottling through both lung fields with suggestion of cavity behind the second left rib. On November 23, 1927, consultation had with Doctor Eloesser by the patient's request, and, although assured that there was nothing surgical in the case, he asked Doctor Eloesser to see him again two or three times. Consultation was had with Dr. Harold Hill and later with Doctor Rosencrantz. Both commented on the unusual features of the case and presence of polycythemia.

Portable x-ray of chest and abdomen, taken on December 6, 1927, revealed an apparent miliary tuberculosis of both sides with no evidences of fluid. No evidence of enlarged spleen.

The condition quieted down, the patient felt fairly comfortable and appetite improved. However, the temperature remained up. Blood count showed a continued red blood cell count of over 5,000,000, despite the continued slight hemorrhages. The urine remained clear. Platelet count was 185,000. At times the patient developed pain in the left lower axilla suggestive of pleurisy, but no friction rub could be heard. Relief was obtained with local applications of mustard.

Patient became discouraged and insisted on going home. It was agreed to take him home from the hospital. However, against the writer's wishes, he was moved across the bay to Ross, by ambulance, on December 21, 1927.

He stood the trip apparently well. The condition remained about the same. On December 31, 1927, he suddenly became delirious. The temperature reaching 104.5 rectally. It was interesting that, during his delirium, he recited his football experiences. Patient died the next morning.

His last blood count, taken on December 22, 1927, showed 4,900,000 red cells with 90 per cent hemoglobin, and 12,100 white cells with 67 per cent polymorphonuclears.

It was extremely unfortunate that no autopsy could be obtained.

COMMENT

Briefly, what has been described was a condition of developing polycythemia in a patient with active, progressive, pulmonary tuberculosis. There

was no history of tuberculosis in the family. Active signs of tuberculosis developed suddenly following hemorrhages due to a crushed chest received in a football game. Despite treatment the pulmonary condition gradually progressed, and polycythemia appeared.

It is interesting to note that this patient followed instructions explicitly. He watched his temperature and weight. Dietetic orders were complied with and he gradually increased in weight. Despite this increase in weight and good care, x-ray pictures taken at varying intervals revealed a steady progress of his active pulmonary tuberculosis. The patient probably lived as long as he did because of the care he took of himself.

During the course of this disease he had several hemorrhages. On different occasions the blood apparently came from the throat, lungs, and stomach. No evidence of bleeding points were found in the nose, throat or larynx. Gastrointestinal fluoroscopy was negative.

The amount of blood lost in these hemorrhages was considerable. However, his red blood cell count averaged five to six million and more. The spleen was not palpable at any time, and apparently was not enlarged. There was no splenic shadow seen in the x-ray.

Very little is known about polycythemia. The old idea of overfeeding, increasing weight and adding resistance to aid the body help fight battles, such as this case of tuberculosis, seems not to have worked well in this particular case. It delayed the activity of the tuberculosis very little, if any; and in the meantime it encouraged whatever tendencies there may have been toward the development of the polycythemic condition.

It seems strange that there have not been more cases of this nature reported in the literature. It may be that blood counts have averaged well over five million following hemorrhages in tuberculous patients, in other plethoric individuals.

The therapy, naturally, was very difficult. In this patient, one was working between two directly opposite conditions. In tuberculosis it is advisable to build up the resistance and guard against loss of weight. To do this it is customary to recommend the best and richest of foods. In polycythemia we have an overthickening of the blood, and a rich blood-building diet would be contraindicated. So what improves one condition aggravates the other. Any roentgen therapy to benefit the polycythemic condition could not have been considered here. However, it was the tuberculous condition that was causing the acute symptoms, and the treatment was stressed in that direction.

It would be interesting to know how much of the tendency toward spontaneous (?) hemorrhage may be blamed on the polycythemic condition. His blood pressure was not elevated.

All these symptoms started after his chest injury. His previous history was uneventful. This may be considered as a case of latent pulmonary tuberculosis which became activated through the injury.

In a personal communication Dr. H. C. Moffitt tells me that he is observing a woman with similar hemorrhagic tendencies and advanced tuberculosis in whom blood regenerates rapidly. He suggests calling the case reported herewith one of polyglobulia rather than polycythemia vera.

SUMMARY

1. A latent tuberculous condition was activated by a football chest injury.

2. Despite excellent care activity gradually progressed.

3. Hemorrhages—apparently spontaneous—occurred from the nose, throat, lungs, and stomach at different intervals.

4. The red blood count was over 5,000,000, even after severe hemorrhage.

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MASSIVE PULMONARY ATELECTASIS*

REPORT OF CASES

By Milton J. Geyman, M. D.
Santa Barbara

MASSIVE pulmonary atelectasis is a well-known complication in a variety of conditions. Collapse of one or more lobes, with resulting displacement of the mediastinum, trachea, and heart, is the essential definition of this most interesting pulmonary complication. This must not be confused with the lung collapse associated with spontaneous or induced pneumothorax.

ETIOLOGY

A brief review of the known etiological factors might be of interest. In 1910 Pasteur described a series of massive atelectases occurring as a complication of diphtheria, and he believed them to be the result of postdiphtheritic paralysis. Chevalier Jackson [1] has shown this diphtheritic complication to be due really to bronchial obstruction by diphtheritic exudate.

Pasteur later reported sixteen cases of postoperative massive atelectases and stated that this comprised about 8 per cent of postoperative complications. Norris and Landis have described it as occurring with pneumonia.

The observation of wounded cases in military statistics has shown a high incidence of atelectasis of the contralateral type; that is, a collapse of one or more lobes when the trauma has occurred on the opposite side of the chest. The wound may have been not more than subcutaneous and amaz-

* Read at the Semiannual Session of the Southern California Medical Society, November 9, 1928.

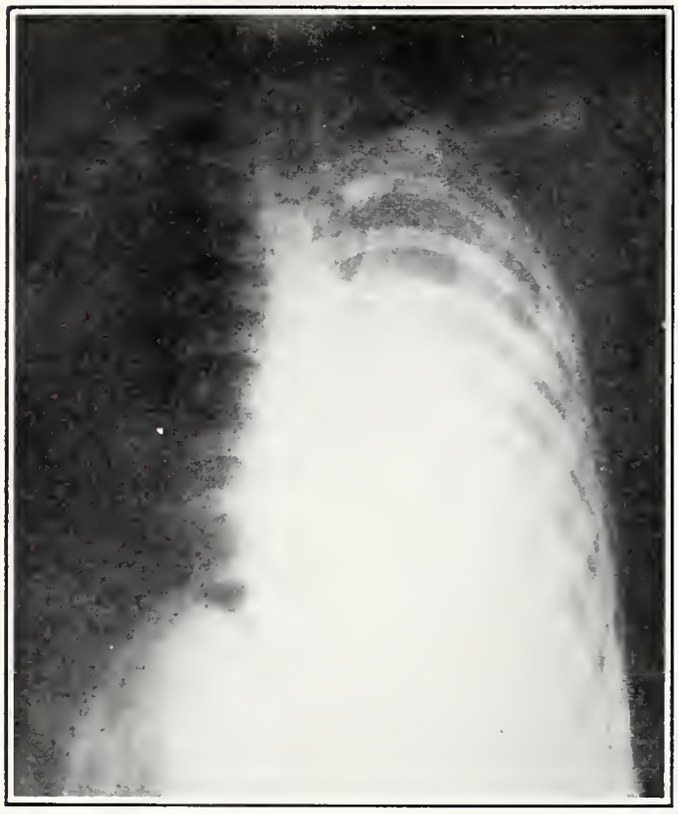

Fig. 1 (Case 2).—Film made April 27, 1926, showing complete collapse of the right lung with displacement of the heart and mediastinum to the right.

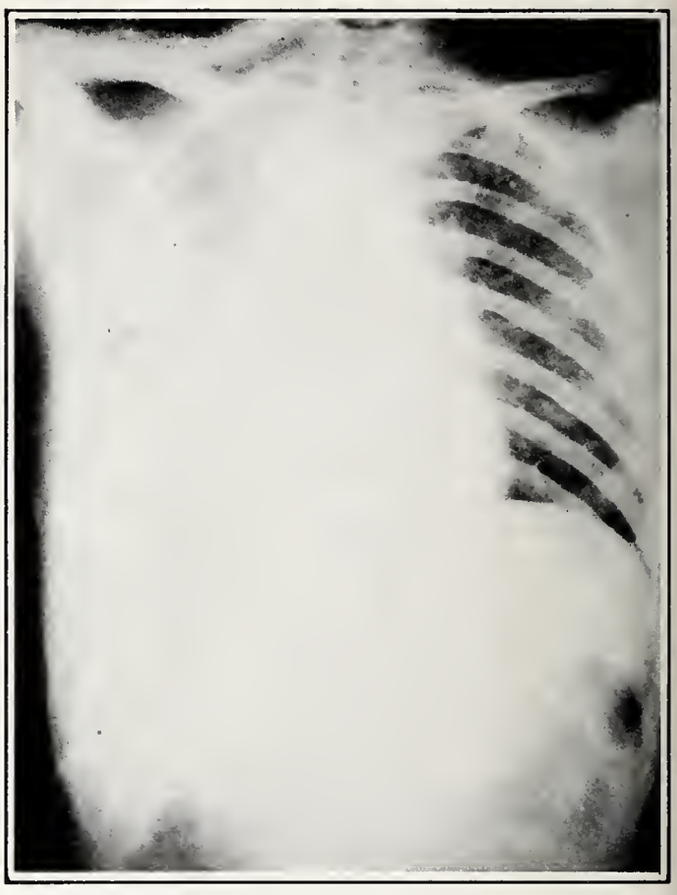

Fig. 2 (Case 1).—Film, May 1, 1926, shows partial reexpansion of the right lung.

ingly slight in view of the resulting complication. This group is the most difficult to explain as regards etiology.

Obstruction by foreign bodies should also be mentioned as a very important etiological factor, as atelectasis very often occurs with such obstruction.

SYMPTOMS

Symptoms may be present in mild or severe degree, although some cases are symptomless. Usually dyspnea is the first complaint and infrequently this is of severe degree. Later, cough may be present with mucopurulent expectoration.

Bradford [2] states that symptoms are more often present and in greater degree in a partial than in a complete atelectasis. The most common complications of massive atalectasis are pneumonia, bronchitis, and pleurisy.

The objective manifestations are most interesting, the physical and roentgen signs always being marked. The thorax shows:

1. On inspection, retraction and immobilization of the chest on the side of collapse with narrowing of the intercostal spaces.
2. Elevation of the diaphragm on the involved side.
3. Percussion dullness over the collapsed lung.
4. Displacement of the cardiac impulse toward the affected side.

The roentgen appearance of massive atelectasis consists of marked homogeneous density over the side of the collapse, with displacement of heart, trachea and mediastinum to the affected side and elevation and fixation of the corresponding diaphragm. The ribs are always seen to be closer together than on the normal side.

As regards the etiology, it is obvious that, from the work of Jackson and his associates, many cases of atelectasis are due to bronchial secretions; and bronchoscopic operative removal restores the air content of the lung with amazing rapidity. Golden,[3] in describing the course of pulmonary carcinoma has reported a number of cases showing atelectasis of the lobe supplied by the diseased bronchus, or the bronchus surrounded by carcinomatous structure.

In speaking of the various etiologies in atelectasis, Chevalier Jackson states: "Although diverse, they have two factors in common, which we believe have some bearing on the etiology of pulmonary collapse, namely, embarrassment or paralysis of the respiratory movement and obstruction of the bronchial tubes. The interference with the respiratory movements may be as slight as that resulting from posture and may increase to that of the voluntary or reflex inhibition which comes from postoperative pain of abdominal operations, or even reach the complete paralysis which occurs in diphtheria. Obstruction has been found to be caused by foreign bodies, bronchial secretion or extra bronchial pressure as is produced by tumors." He believes that multiple emboli coming from the field of operation are arrested in the collapsed areas and cause the collapse.

Sante [4] has made some interesting observations regarding treatment. He has rolled the patient back and forth on the normal side under fluoroscopic observation and has seen the atelectatic lung

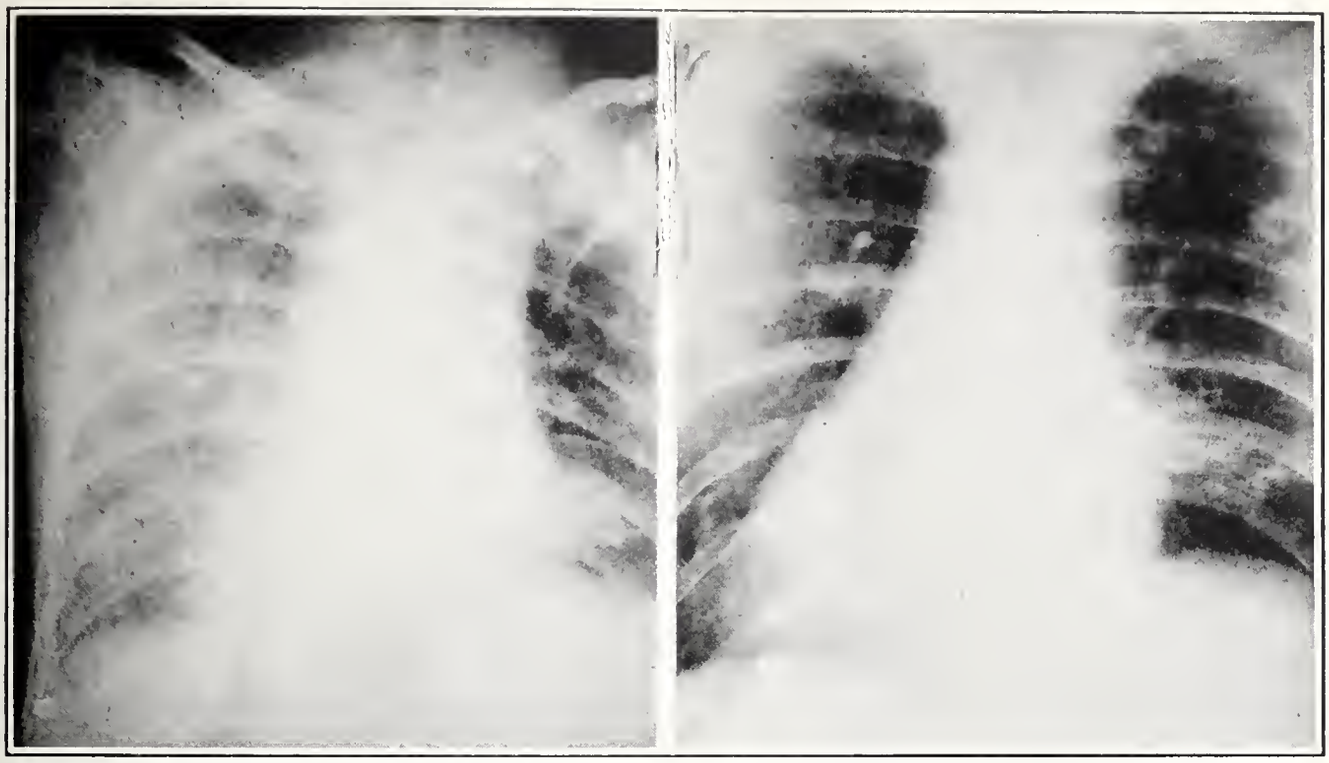

Fig. 3 (Case 2).—Film, December 23, 1927, shows a partial massive collapse of the right lung.

Fig. 4 (Case 2).—Film, December 26, 1927, shows practically complete reëxpansion of the right lung.

expand. Jackson and his associates accomplish the same result by bronchoscopic removal of mucus from the bronchi. The simple method suggested by Sante logically seems the indicated treatment, and if this fails and symptoms are urgent, bronchoscopic procedure can always be done.

Four cases have come under my observation and I wish to cite two of these, not having the clinical data or the roentgenograms on the others.

REPORT OF CASES

Case 1.—A boy, fourteen years of age, developed a hernia two years previously, following a kick by a horse. Nothing abnormal was noted in his history or physical examination, except the hernia. He was operated April 23, 1926, under nitrous oxid anesthesia. On April 24 he developed an elevation of temperature and cough. Examination of his chest revealed a dullness over the right lower lobe, and hyperresonance over the right upper and middle lobes. The heart was to the right. Bronchial breathing and many coarse râles were heard over the lower right lobe. The intern, Doctor Schroeder, made a diagnosis of postoperative massive collapse of the lung, and called Doctor Fahr, who agreed with the diagnosis. A leukocyte count showed 17,350 on the evening of the 24th. The patient's temperature jumped from 101 on the 25th to 103 on the 26th. It then dropped sharply and struck normal on the eighth day after operation. Roentgenograms on April 27 showed a complete massive collapse of the right lung with usual displacement of the heart and mediastinum. On May 1 roentgenograms showed a partial resolution of the collapse, and on May 11 a normal roentgenogram was noted. Doctor Fahr felt that an associated bronchopneumonia accounted for the temperature.

Case 2.—This patient was a young woman who had been suffering from a fibroid pulmonary tuberculosis for some years, the left kidney removed on December 16, 1927, because of tuberculous involvement. On the 22nd a roentgenogram of the chest revealed a displacement of the heart and mediastinum to the right, with a partial collapse of the right lung. Roentgenograms on December 24, 25, and 26 showed a gradual regression of the partial collapse.

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Smallpox — Ohio's Disgrace.—In the eight years from 1912 through 1919, smallpox cases reported to Ohio health authorities numbered 33,401, a yearly average of 4175. During the next nine years, 1920-1928, smallpox reports numbered 33,874. a yearly average of 3764. Total for the seventeen years was 67,275, with a yearly average of 3975. It is evident, therefore, that with respect to smallpox, conditions in Ohio are not fast getting any better.

This conclusion is emphasized by figures thus far in 1929, with 524 reported cases to March 29 and a daily average of six, which is nearly twice the daily average for 1928, when 1236 cases were reported.

There is no doubt that reported cases are far below the actual total. There is a tendency in many places to hide smallpox cases, and many of them are never seen by physicians; so it is a conservative estimate to say that in these seventeen years probably more than 100,000 Ohioans had smallpox.

Virtually all this vast aggregate of disease is due to activities of antivaccinationists of various kinds and degrees. They oppose every effort to provide the only known safeguard against smallpox; they prevent the adoption by boards of education of vaccination as a prerequisite to entry in the schools, and in other ways obstruct this phase of public health administration. Smallpox is the continuing disgrace of Ohio, and responsibility for it rests on the shoulders of antis and cultists whose activities constitute the reliable index of a low grade of community intelligence.—*Ohio Health News*, April 1929.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

BACKACHE

From an Orthopedic Viewpoint

J. Judson Sale, San Francisco.—Backache is one of the most perplexing problems that an orthopedist is called upon to solve. This condition is complained of equally by both male and female at almost any time in life, but most frequently between the ages of forty-five and fifty-five years. This decade contains the largest number of complainers, chiefly as it is known as the "critical age" for women, for it is about this time that the muscles begin to lose some of their elasticity.

The causes of backache can generally be classified as follows:

1. Postural or attitudinal.
2. Injuries.
3. Inflammatory conditions.
4. Congenital defects.
5. Neoplasms.

1. In the *postural* group the physical signs and symptoms are listing of the body to the side, or forward flexion; asymmetry in the folds of the skin; obliteration of the normal curves of the spine; limited motion accompanied by muscle spasm and restricted motions in the hips, especially hyperextension.

Symptoms due to faulty posture are more or less chronic and there is always an erroneous deflection of the weight. This type of backache can be relieved and often cured by correcting the posture, reëstablishing the normal curves of the spine and strengthening the muscles of the back by exercises in conjunction with massage and heat. These forms of treatment are to be used in connection with proper spinal support, which is best obtained in women by wearing a snug-fitting corset cut high enough to support the lower four thoracic vertebrae, and which fits the crests of the ilia very snugly. In men, the so-called "sacro-iliac" belt, when properly fitted, will give the required support.

2. *Injuries*, perhaps, cause the majority of complaints, especially among men. Injuries may be either to bony or soft tissue. In either case, treatment consists of immobilization of the injured part for a sufficient length of time to permit repair. Recurrent backache, seen so often in industrial cases, usually starts with an acute strain which produces edema, a probable hemorrhage in and about the ligaments of the lumbosacral region which in turn causes pressure on the lumbosacral nerves of a sufficient degree to produce referred pain. When treatment in these cases is inadequate and strain is superimposed upon strain, we soon have a chronic complainer with backache of an almost irreparable type.

3. *Inflammatory conditions*, acute and chronic, include chiefly the types of arthritis, myositis, and osteomyelitis. Arthritis of the spine is doubtless the cause of most backaches, exclusive of injuries. Treatment of this condition includes practically everything in the armamentarium of the physician. Primarily the treatment should include protection to the diseased part with the spine in normal position; the removal of any possible foci of infection, and general systematic treatment in conjunction with a certain amount of physiotherapy, when one is definitely sure that no active process is present.

4. *Congenital defects* such as four or six lumbar vertebrae or extra long transverse processes impinging against the ilium produce the so-called "sacralized" last lumbar. Asymmetry in size and shape of the sacro-iliac joints and spondylolisthesis are also classed as congenital defects, and these conditions are diagnosed by x-ray in correlation with the physical findings. Their presence has to be taken into consideration in the general treatment.

5. *Neoplasms* either in the canal or bony structure are detected by careful x-ray study in connection with spinal puncture, localized injections, and neurological findings. Treatment of this type of backache is the treatment of malignant disease and does not come within the scope of this discussion.

* * *

From the Genito-Urinary Viewpoint

Miley B. Wesson, San Francisco.—The average backache is rarely primary nor does it often demand wholly the type of treatment given by the orthopedic surgeon, and only in a great while is operative interference indicated. Generally it is a secondary manifestation of a focus of infection that lies in the genito-urinary tract, teeth, tonsils, gall bladder, appendix, or intestines; but it is just as erroneous to attribute all backache to such infections as to say all seminal vesiculitis arises from venereal disease.

Just as renal colic follows interference with the free flow of urine from the kidneys, backache results from lack of drainage of infections in the seminal vesicles and prostate. The discomfort may be due directly to referred pains or indirectly to metastatic infection. As a result of the latter, local fibrositis or arthritis develops in the lumbosacral spine causing the patient to assume an attitude in standing or walking that increases muscular back strain, consequently the static element is often eventually responsible for the pain in the muscles and ligaments of the back.

The wide distribution of the referred pains can be rationally explained since innervation is en-

tirely sympathetic and parasympathetic. Head, and others, have shown that the fibers ending in the prostate and seminal vesicles arise from the tenth dorsal to the third sacral segments. It is thus possible for the pain to be referred to the regions innervated by any of the corresponding spinal nerves. Because of a psychic error of judgment the diffusion error is accepted by the patient and the pain is referred to the surface of the body instead of the viscera actually affected. One of the characteristic differential points is that the pain is made worse by pressure on the structures at fault, but back motions are not limited until arthritis develops. Particularly important in the lower back is the presence or absence of tenderness on pressure in the area where the pain is felt. If the two coincide it suggests that the diseased condition is localized, otherwise we are probably dealing with a referred pain.

Infections may cause symptoms for years before x-ray changes are manifest. Furthermore, following the clearing up of the responsible focus of infection all symptoms may disappear in a patient whose spine shows marked changes. The average patient with backache has a hypertrophic arthritis, and the multitude of spurs indicates that the lesion has been present for many years although it has caused no symptoms. For some reason there is a flare-up of the responsible focus of infection and about the same time, as the man bends over to tie his shoe laces in the morning, lifts a weight during his work, or even sneezes, he notices a catch in his back, and total disability ensues. If the trouble is due to an exacerbation of the seminal vesiculitis, the pain will disappear with the establishment of drainage and the subsidence of the infection. The newly discovered old damage to the spine remains, but the man can be put back to work and continue as a useful citizen instead of taking a prolonged course of physiotherapy or permanent "rest cure" as a pensioner of some corporation.

The layman has been educated through the kidney pill advertisement in the newspapers, illustrated by a picture of a man bending over with his right hand pressed tight against his loin, to believe that pain in the back is due to kidney trouble. A microscopical examination of the second glass specimen of urine should be made in every case of backache and if it contains pus or organisms the genito-urinary tract should be searched for the source of the infection. Backache is not an indication for a kidney investigation, but a marked pyuria or bacteria in the urine always is.

Referred pains are among the classical symptoms of seminal vesiculitis, the order of occurrence being pain or ache in the back, legs, suprapubic region, groin, scrotum, kidney, etc. They are accordingly commonly diagnosed and treated as sacro-iliac disease, spondylitis, sciatica, hernia, appendicitis, etc. Gynecologists have long recognized that pus tubes in the female must be ruled out before an appendicitis operation is decided upon, but many orthopedic surgeons have yet to learn that seminal vesiculitis or "pus tubes in the male" are equally confusing and not infrequently result in Smith-Peterson operations for "sacro-iliac slip."

All males who have never reveled in petting parties, been guilty of excessive masturbation before puberty, or suffered from gonorrhea will probably avoid the discomfort and dangers of chronic prostatitis and seminal vesiculitis with resultant backache.

* * *

Gynecological Aspects of Backache

Henry N. Shaw, Los Angeles.—Reflex backache is often due to involvement of the pelvic viscera, the sensations being reflected through the ganglion and felt as pain in the corresponding somatic segment. As it descends from the intervertebral foramen, the lumbosacral cord passes over the pelvic brim, and is therefore subject to the pressure of pelvic or abdominal tumors or organs, or the irritation of inflammatory processes.

Backache above the sacral or lumbar regions has no definite relationship to pelvic pathology. Low backache is a common finding in women with pelvic disease, occurring in 49 per cent of Lynch's series of 1041 operative gynecological cases, and in 50 per cent of a series operated on by Ward. The fact that it was due to pelvic conditions is rather conclusively proved by the fact that 85 per cent of the cases in these two series that complained of backache as a preoperative symptom were cured after operation.

The pessary plays an important rôle in the diagnosis of backache, due to retroversion or descensus. It is not advisable as a method of treatment except in cases where surgery is contraindicated. Retroflexion, or retroversion, of the uterus has been much overemphasized as a cause of backache, and no suspension operation should be done in patients who do not complain of symptoms, or in those whose symptoms are not relieved by tampons or the pessary. Some gynecologists believe that descensus of the uterus, regardless of whether it is tipped forward or backward, is the main cause of bachache. Graves followed up a series of 263 cases of retroversion treated by suspension, and found 85 per cent cured or greatly relieved.

Chronic cervicitis unquestionably causes many cases of backache. Unfortunately there is no gynecological condition which has been worse handled than this. The racemose glands of the cervix are about .5 to 1 centimeter in depth, and extend up the canal about 4 or 5 centimeters. The diameter of the canal is slightly less than that of the lead in a pencil. One might paint the external os with mercurochrome, silver nitrate, or any other antiseptic, following it up with medicated tampons, and not help an infection in the deep glands further up the canal. The only treatment of value is radial cauterization, fulguration, or diathermy.

Relaxation of the perineum is a common cause of backache, due to traction on ligaments and muscles of the pelvis with consequent pressure on

nerves. Suitable methods of repair relieve a high percentage of these cases.

During the past three years we have seen a number of cases of backache due to hemorrhage from ruptured Graafian follicles, causing adherent tubes or ovaries. These cases were all relieved by freeing the adhesions and suspending the fundus to hold the adnexa above their former site.

One would expect the radical operations for cure of procidentia or prolapse to give a higher percentage of cures of backaches. In fact, some men claim as high as 85 per cent cures. This has not been our experience. One explanation is that the condition has usually existed a long time, and permanent damage may have been done to ligaments and joints by the long-continued loss of support.

The various types of pelvic tumors—fibroids, ovarian cysts, etc.—act by pressure on pelvic nerves. Some large tumors cause surprisingly few symptoms, probably because they are well out of the pelvis and do not impinge on the nerves.

In conclusion, we wish to reëmphasize two facts:

1. Backache above the lumbar region has no definite relation to pelvic pathology.

2. Noninflammatory conditions in the pelvis which are not relieved by the pessary will seldom be helped by surgery.

* * *

From the Radiologist's Viewpoint

Lyell Cary Kinney, San Diego.—The radiologist sees two types of backache: first, the type due to injury or pathology of the vertebrae; and second, that in which the spine plays little or no part. The latter is the more frequent. Due emphasis has been laid upon backache from pelvic and urinary pathology. Another large group is intrinsic back pain from muscle spasm or fatigue in faulty posture and from ligamentous strain or infection. In these cases the function of radiology is to rule out the presence of lesions in the spine, and the findings are usually negative.

When backache is due to causes in the spine the roentgen examination is diagnostic. Following trauma every case of backache should be considered a fracture of the vertebrae until proven otherwise. During the past year we have seen four cases of fracture of the bodies of the vertebrae, the direct result of being bounced in an automobile in ordinary city traffic. Fractures of the transverse processes occur in minor injury or occupational strain and are a frequent unrecognized cause of backache, discovered at a delayed roentgen study. But while demonstrable fracture is frequent, the more common etiologic cause is injury to ligaments and fascia or strain of the sacro-iliac or sacrolumbar joints. None of these conditions give roentgen findings, and negative findings do not rule them out.

Anomalies in the formation of the vertebrae in the sacrolumbar region are often found in backache. It must be remembered that such anomalies are found in nearly one-half of all patients and they are usually symptomless. Congenital defects that are sufficient to make the foundation for the vertebral column poor or destroy its balance are important in that they necessitate protective muscle spasm and cause ligamentous strain. Actual rotation or slipping of a body, leverage of one side against the ilium, asymmetrical or detached articular processes are examples of such anomalies that may give rise to intractable backache. The fact of anomaly is unimportant, but unbalanced or improper foundation in this region is a significant roentgen finding.

Arthritic or hypertrophic changes in the spine are often seen with back pain. In early and middle life this has the same meaning as arthritis elsewhere. After fifty, hypertrophic changes lose much of their significance as a primary cause of backache, for these changes occur in two-thirds of all patients, and are accompanied by pain in less than 25 per cent where they are present. But in traumatic cases the arthritic changes are of great importance. Exostoses are brittle, calcified ligaments rupture easily and the infection process may become acute. Such a spine is liable to serious and prolonged disability from minor injury.

In childhood where there is prolonged back pain the radiologist must rule out tuberculosis, osteomyelitis, and osteochondritis. In late adult life metastatic carcinoma and Paget's disease in the vertebrae are probable causes.

Among the extrinsic causes of backache renal calculus is always a possibility. Apical abscesses, paranasal sinusitis, gall-bladder pathology and ileocecal stasis are determining foci of infection that may localize in the lumbar muscles, fascia, ligaments, or spine. Such focal infection is a common cause.

Thus, from a radiological standpoint, backache presents these problems for study: Is there injury, mechanical defect or a pathologic condition in the spine? Are there renal or gall-bladder calculi? Are there foci of infection to account for inflammatory changes in the supporting soft structures of the back? These conditions may be primary or may accompany other causes such as pelvic, urinary, or static. They each require careful consideration for a complete diagnosis of the symptom backache.

Regents Approve University of California Institute of Tropical Medicine.—Formal establishment of the Pacific Institute of Tropical Medicine Within the George William Hooper Foundation for Medical Research of the University of California, was announced yesterday afternoon, following the April meeting of the regents of the university. The plan of President W. W. Campbell and Dean Langley Porter of the medical school was approved by the board of regents and the institute will be opened next year. Dr. Alfred C. Reed, professor of tropical medicine, will be its head.

The purpose of the new organization is to provide the western center for the treatment and study of tropical diseases, for research in the general problems of health and food preservation in the tropics or locally as a result of conditions having their origin in the tropics, for public education and for the treatment of individuals suffering from tropical diseases.—*U. C. Clip Sheet.*

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

MEDICAL LEGISLATION—FURTHER COMMENTS

Having embarked in these columns on a discussion of certain prospective laws pertaining to the practice of medicine, which could affect the interests of physicians of California, there is now no course to follow other than to keep the members of the California Medical Association informed on the various bills, until such time as the Forty-Eighth California Legislature decides that it has concluded its labors and sees fit to adjourn, which will probably be in May or June.

No startling legislative news can be chronicled at this time, because at this writing no bills have been passed nor has rejection in others of interest to the medical profession been absolutely final. The days, however, have been unusually full of arduous labor for a number of officers upon whose shoulders has fallen the responsibility of watching and guiding certain measures through the committees of the Assembly and Senate.

* * *

Vocational Standards Bill.—This measure is proceeding to passage, and practically in the form as outlined in the leaflet, a copy of which, in April, by action of the Council, was sent to every member of the California Medical Association. The members of the Council, with special facilities for observation, were practically a unit in believing that the bill in its present form was as good as could be expected, and that for all practical purposes it would amply safeguard the rights and prerogatives of the California Board of Medical Examiners. The members of that board seem to hold to a somewhat similar opinion. It seemed wise, therefore, all things considered, not to engage in unnecessary controversy by opposing the Vocational Standards Bill.

* * *

The Medical Library Bill.—This bill, which if enacted, could in years to come be made to be of untold service to the medical profession of California, is having a somewhat tardy progress. Just why, is as yet not altogether plain. It is a measure to which the California Medical Association, through its officers, has committed itself. The California Board of Medical Examiners cannot well use, and what is quite as important, the state department of finance will not allocate to the examining board a budget permitting the utilization of all the monies in the reserve fund of the California Board of Medical Examiners. These monies coming from doctors, must not and shall not be diverted into the general state fund for upkeep of roads, prisons, and so on, without vigorous objection and indignation from the medical profession. On that point there need be no doubt.

As this is written, the latest proposal to jeopardize the measure comes from obscure sources. It is probably an expression of the well-known procedure of smothering a bill by means of amendments. In this instance, it comes forth as a naïve proposition to divide the $100,000 between two of the medical schools of California for their libraries, because then the books and journals would be made more available to a larger number of student readers! Now there are four regular medical schools in California and this proposition would leave two without recognition, as well as placing state money in at least one nonstate institution, itself a proceeding with little warrant in constitutional law. All who know much about modern-day undergraduate training appreciate that the need of undergraduate medical students is not for more collateral and diversified literature and courses, but for more intensive application to well-known standard textbook work, in which fundamentals are emphasized and reëmphasized. This sudden intense interest in some of the medical students of California, by someone from somewhere, is therefore a surprise, and especially so, since the proposal would nullify for the profession at large much of the value of the proposed state medical library.

This proposed state medical library can amply serve the medical institutions of California, but such service will be best performed through faculty library committees in touch with the state librarian's office, and with equal recognition of every medical school in the state.

In similar manner this proposed state medical library can serve hospital staffs and county medi-

cal societies of California by supplying chart and other exhibits and special literature for programs which could be arranged in advance. If a systematic and rotating so-called postgraduate course of lectures, such as was promoted by the American Medical Association several years ago, were outlined in connection with the extension lecture work of the California Medical Association, it is quite understandable how a traveling set of excellent charts and so on, could be of very great service in adding to the interest and value of hospital staff and component society scientific meetings. But, above all else, this proposed state medical library, as one of the activities of California, would make it possible for every physician to call upon it without any hesitancy whatever to aid him in getting a better grasp on any literature or subject in which he was interested. The arguments for this state medical library are all in its favor. The bill should and will go on to passage unless narrow or similar vision and activity complicate the situation, and in such event, the readers of this journal will be told the facts.

* * *

Lien Bills.—The so-called lien bills (Senate Bill 513 and Assembly Bill 719) have received considerable thought and discussion by officers of the Association. These measures would have given physicians, nurses, and hospitals a lien for services rendered, on any sums awarded injured persons cared for by these agencies. These measures were particularly intended to be of service to physicians, nurses, and hospitals, in California towns on or near major highways, to whom persons injured in automobile accidents are promptly taken for care, but which patients, after care is given and beds and materials supplied, often depart without paying for any of these things. Of course, such action is all unjust and unfair, and some time the situation must be remedied. For the moment, however, a majority of the legal members of the judiciary committees of the legislature seem to hold that such a lien bill would give physicians improper advantages over attorneys. Continued effort will be made to persuade these legislators to take a different viewpoint. The campaign of education will be kept up until the inherent merits of these lien bill measures will be recognized, so that they may be incorporated into the California statutes.

* * *

Nurses Bills.—These measures were discussed in the March issue of California and Western Medicine (page 191). Senate Bills 52 and 143 are presumably acknowledged as booked for defeat. Senate Bill 104 has been tabled, but efforts are still being made, and probably will be continued by certain representatives of the nursing profession, to bring it out of committee. The Council and Executive Committee of the California Medical Association are firm in their belief that the best interests of the nursing profession will be served if these proposed measures are made a subject of study and conference during the next two years, so that legislation satisfactory to all interests may be presented to the next legislature. From all accounts some of the spokesmen, or rather spokeswomen, for these measures have been badly advised, and misstatements have been made that have created several embarrassing situations when the denials later on came in. Thus, for instance, without authority and with practically no basis, the names of several officers of this Association were given at Senate committee meetings as being in favor of S. B. 104, when they were known to be opposed to the bill. No good ever results from such tactics.

The nursing profession has important rights, which should be conserved and safeguarded with the same care as are those of the medical profession. It is hoped that out of all this discussion of these measures which concern the nursing profession will come a better understanding of the issues involved, so that at the next session of the legislature desirable changes in the present methods of licensure of nurses, and so on, may be taken up for consideration.

* * *

Other Bills.—A goodly number of other bills, such as those having to do with expert medical testimony, care of mental patients, and so on, are receiving active surveillance by officers of the Association, but it would lead one too far afield in this column to comment in detail on each. As was previously requested, every member who is especially interested in any measures now before the legislature should feel free to send suggestions or comments to the central office of the California Medical Association, so that the same may be forwarded for consideration to the proper officers.

ADVANTAGES OF COUNCILOR DISTRICT SOCIETIES

Medical Organization Problems Associated with California's Bigness.—The fifty-eighth annual session of the California Medical Association was held at San Diego, May 6 to 9, just as this number of California and Western Medicine was being prepared for the mails. On that account, a report of the San Diego proceedings must lie over for next month's issue. It may be taken for granted that our San Diego colleagues did their part well and that the 1929 annual session will have a place among recent successful sessions of the California Medical Association. The attractiveness of scientific and entertainment programs which were offered probably brought out a good attendance, in spite of the somewhat remote geographical position of San Diego to central and northern portions of the state; and the fact that at Los Angeles those members who traveled south on Southern Pacific trains were obliged, with varying loss of time, to transfer to Santa Fe trains. These traveling inconveniences by train

only emphasize the bigness of California's domain, and call attention to the diversity of physical environment and the peculiarities and characteristics of urban and rural life in different portions of the state and some of the problems of organized medicine which in part arise therefrom.

* * *

Other States Have Councilor District Societies. Which brings to mind the thought that, if other states of far lesser geographical extent, in order to better coördinate organization activities find it advantageous to have councilor district societies of their state medical associations, it might seem equally or more desirable for a state as large and diverse as California also to have such district associations.

* * *

Councilor District Societies in California Still in Their Infancy.—Councilor district societies as an expression of organized medicine in California, and of better organization of the California Medical Association, may be stated to be still in their infancy. The seeming exceptions are the Southern California Medical Association, which embraces the three or four councilor districts south of the Tehachapi, and the California Northern District Medical Society, embracing a somewhat similar territorial scope.

Is it proper to ask ourselves whether the time has not arrived when a councilor district society could be contemplated and perhaps organized in almost every councilor district of California? Such councilor districts are made up of county medical units in such comparatively close geographical proximity that semiannual sessions (the county units perhaps waiving meetings in those two months) would work very little hardship.

To vary the routine, and for the advantages that would come through other contacts, two or three of such councilor district societies, in every second or third year could join forces and in lieu of one of their meetings, put over a joint meeting, which would still further widen the influence, and create a greater solidarity and interest among members of the profession having closely related and interlocking public health and other problems.

* * *

How Councilor District Societies Make for More Efficient Organization.—The advantages of councilor district organizations are many. Such councilor organizations bring together the officers of the different county units, and the good work of one county society becomes a stimulus for more aggressive activity in other county societies of the district. In similar fashion, colleagues from one county through such councilor district organizations, have an opportunity to meet other colleagues having somewhat similar professional problems of scientific, social welfare, or economic nature. And last, but not least, such district organizations make it possible for that large number of colleagues who find it very difficult to leave their practices for three to six days at a time, to attend the annual sessions of the state association, to meet and reap the joy and benefits which come through meeting colleagues who otherwise would be most infrequently seen.

* * *

Present Section or Group District Societies Could Continue.—If such councilor district societies were formed it would not be necessary for group county organizations like the Southern California, the Sacramento, or San Joaquin societies to disband. These could hold their meetings once or twice a year, as now, and act practically as section societies covering a geographical domain as large as might seem desirable.

* * *

Concerted Organization Effort by District Councilors.—If there be merit in councilor district organizations for California, why would it not be a good plan if a concerted effort were made by the nine district councilors to bring such societies into existence in their respective territories? Much of the initial work of organization might be handled from the central office of the Association at San Francisco, the district councilor taking the initiative, and through appointment of a program committee, providing at the organization meeting for a one day's session, with a morning, afternoon, and evening meeting. In addition to local speakers and essayists, colleagues from the Extension Bureau of the California Medical Association (see page 281 of the October 1928 issue for full lists of papers and essayists) could be called upon to round out the scientific programs. Within certain limits, by action of the Council, the primary cost of organization of such councilor district societies might be financed by the State Association.

A simple mode of organization could be worked out by the Council as a working basis for the inauguration of the different councilor district societies, until such time as experience pointed out desirable modifications.

* * *

Scientific Medicine Needs the Support of Organized Medicine.—The forces arrayed against scientific medicine are many. On all sides its rights and standards are endangered, sometimes by malevolent forces, and not infrequently by well-meant endeavors, which if brought to full development, will act as deterrent forces to the advancement of organized and scientific medicine and their capacity for service.

The way to organize is to organize, and good organization implies the utilization of the influence and coöperation of all members of all component county societies. California is geographically, economically, and socially so large that it would seem to need group effort between city and county units and the parent state organization. In organized medicine as represented by the California Medical Association, the formation of councilor district societies might make for greater progress in both the component county societies and in the state association, and on that account

would seem worthy of careful consideration and support by all who would have the medical profession take as strong a position as possible before the public. The public has a real respect for strong, legitimate organization. It is apt in this day and generation to think lightly of institutions, organizations and businesses that are not well organized.

POPE'S AND ROANTREE'S ARTICLES IN THIS ISSUE

The Work of Saxton Pope in Africa.—It is a busy world, this in which we live. With its ever present pressure of work before us on the today and on the morrow, it seems difficult to find time to contemplate some of the activities of yesterday. Some of the work of a yesterday is brought to our attention by an article in this issue of California and Western Medicine; work which was done by a former member and officer of the California Medical Association, Saxton T. Pope, whom death took from our midst two years ago. This research, to which publicity is only now given, brings to mind Saxton Pope's unusual capacity for work, his diversity of interest in scientific matters, as well as his interesting personality.

It was an experience in itself, as we look back upon it, to see Saxton Pope, a physician, becoming especially interested in Indian lore through professional contact and observation of an aged member of one of California's early Indian groups. And from that experience, taking up the special study of bows and arrows, and ending with his determination to engage in the hunt for game with these implements, because of the increased hazards and sportsmanship elements connected, under such conditions, with a chase of the wild.

When Saxton Pope was among us, as a busy fellow practitioner and as secretary of this Association and as editor of its journal, his personality took on additional charm when it became known that he had engaged in the hunt with bow and arrow, first of small game, and then later of wild cats and bears, in the great open spaces.

These unusual achievements would have been ample for most men. But not so for Saxton Pope. For him the quest of attainment demanded more. It was therefore a surprise, though not incredible, to learn that, with a number of kindred spirits, he intended to go to Africa on a bow and arrow hunt for lions. The record of that trip has been put in page form, and needs no mention here.*

What concerns us now, is that it seems very fitting that attention should be called to some scientific work which he did in Africa in connection with the animals killed by him. That work or line of scientific investigation is unfolded in the article in this issue by Dr. S. H. Mentzer, in which the drawings and observations which were made by Doctor Pope on the biliary tracts of animals killed in the African expedition are now placed in permanent record in this journal, which he once edited. As the many colleagues who knew Saxton Pope peruse this article, and note the illustrations and observations from his pen, their hearts will glow with renewed pride at having known him. In this, one of his last works, Saxton Pope did honor to the medical profession of California, and this somewhat tardy publication of some of his observations will only add to the interest which it must have to many members of the California Medical Association.

* * *

An Article by an Elko, Nevada, Colleague.—California and Western Medicine is the accredited publication representative of the medical associations of the states of California, Nevada, and Utah. For the benefit of those who are not acquainted with the fact, it is proper to state that Elko is a small town of some three thousand population.

An article in this issue of California and Western Medicine, on "Torsion of the Spermatic Cord," is from the pen of Dr. R. P. Roantree, a colleague who resides in this small Nevada town.

Special mention is made of this particular article not only because of its worth in exemplifying alertness in clinical observation and excellent portrayal in word picture of the subject presented, but to bring out for special emphasis that a large urban center is not the only and absolutely necessary background for scientific observation in medical problems.

The excellent article by Roantree of Elko should recall to us that the open, well informed and questioning mind and eye, will see cases of value and interest no matter how seemingly small in population numbers the community in which one practices may be. Roantree's work reminds us of the need of shaking off somewhat the shackles of routine practice, so that our daily professional labors may be fraught not only with the credit of good results to our patients, but with medical observations which can be of value to ourselves and to our fellows.

FEDERAL TAX ON EARNED INCOMES OF PHYSICIANS

In the Medico-Legal column of the Miscellany Department of this issue of California and Western Medicine is printed a form of petition to Congress, in which a plea is made for a reduction of the federal tax on earned incomes. This petition presents the argument on behalf of physicians, giving the reasons why this particular class of citizens feels that it should be exempt from certain of the income tax provisions which now obtain. The effort which is now being made throughout the United States to have a reduction of earned incomes of all classes is one that merits careful consideration by our federal lawmakers.

Every county medical association and every hospital staff and organization should pass resolu-

* The Adventurous Bowman, by Saxton Pope. Published by the George P. Putnam Company, New York.

tions somewhat of the form above referred to. The full copy should be sent not only to the United States Congress direct, but might well be sent to the United States senators and various representatives from California. The full list of these federal senators and congressmen is also given in the Medico-Legal column, with directions on how to address communications to be sent to these officials.

If the more than four thousand members of the California Medical Association would send to California senators and congressmen, letters supporting the plan to reduce the federal tax on earned incomes, then these United States senators and congressmen would be apt to be far more aggressive in their efforts to bring about such reduction than would otherwise be the case. The equity of the proposition must be self-evident. The present campaign for a reduction is being made under broad auspices, and no doubt will result in a real effort to bring about a better adjustment in these tax matters. Every physician in California who pays federal income taxes under present conditions, is in one sense submitted to a hardship out of proportion to that borne by other citizens for whom special exemptions are made on capital income. It is hoped that county medical societies, hospital staffs, and members of the medical profession will give this present movement to bring about a readjustment of federal income taxes in relation to earned incomes most hearty support. Your letters will be of value in educating your lawmakers and representatives at Washington concerning the viewpoint of the medical profession of California. And what has been here written concerning California applies with equal force to our sister states of Nevada and Utah, whose state medical associations are represented in this journal.

Mastitis-Raw Milk Combination Causes Another Epidemic.—*Health News* of last week recorded an epidemic of septic sore throat as having been traced to raw milk from a herd in which there was a cow with an infected udder, and mentioned one in Savannah, Wayne County, as under investigation. Following is a report of the Savannah outbreak.

In the week of March 10 approximately seventy-five cases were discovered in the village, which has a population of about 600. Most of the cases developed between the 10th and the 13th. All those investigated had used Grade A raw milk from one dairy and no cases were discovered among persons who had not used this milk. In one family a child who had the milk at school was ill, but no cases occurred among other members of his family who had used other milk. In another family two adults who had used the milk on cereal were ill, while two children who had used no milk escaped. The existence of cases of sore throat on the farm previous to the beginning of the outbreak was denied.

Investigation revealed that a cow in the herd supplying the milk received an udder injury about March 2. A veterinarian who examined the udder on the 6th reports that he found no evidence of inflammation at that time. The existence of mastitis was discovered on the 13th, but apparently the milk was not excluded until after that date.

When the epidemic was reported to the department arrangements were made to have Dr. R. S. Breed, department consultant, visit the dairy with the local health officer, veterinarian and district state health officer, to advise concerning exclusion of milk from the apparently unaffected cows. The milk was temporarily excluded and samples for bacterial examination were taken from all cows in the herd. Examinations made in the state laboratory indicated that hemolytic streptococci were present in the milk from the infected cow and in throat cultures from patients.

These epidemics, following closely upon that at Lee, Massachusetts, and the outbreak of illness among school children at Cornwall, outlined in *Health News* of December 24, 1928 and the Wayland epidemic reported last week, all traced to raw milk from herds in which there were cases of mastitis, furnish striking evidence in support of the department's position (1) that acute mastitis constitutes a serious menace to the health and safety of consumers of raw milk; (2) that under present conditions the farmer cannot be depended upon to discover the condition until it is well developed, or to exclude the milk immediately after its discovery; (3) that veterinary examinations of herds at least monthly, or weekly bacterial examination of herd milk samples, or a combination of the two, provide a distinct safeguard which, however, is not absolute, since mastitis may develop in the intervals, and that (4) the only certain safeguard is effective pasteurization.—*Health News,* April 1929.

Wise Recklessness.—A good many centuries ago one of the most far-sighted seers of human history said, in effect, that the man who saves his life may lose it, while the man who loses his life may save it.

If Bernard Shaw or G. K. Chesterton had said this, the world might have dismissed it as a clever bit of journalistic word juggling, a sacrifice of sober truth for verbal effect.

But the world is a bit reluctant to accuse the Galilean Prophet of word juggling.

Jesus was not a journalist.

He did not make a living by tickling the ears of subway crowds with trenchant epigrams. He was a master of trenchant epigram. I do not know a better textbook for budding journalists than the New Testament. But His epigrams and His paradoxes were born, not of conscious word carpentry, but of an insight so deep that its simple expression was so far from the common notion that it seemed strange and bizarre.

It has taken several centuries to grow up to some of His epigrams.

The epigram I have mentioned—that a man may save his life by losing it—is a perfect example of what I mean.

A score of illustrations outside the field of mystical religion can be mustered to show how the world is demonstrating the practicality of this seemingly absurd assertion.

All that is best in the medical profession, for instance, is bent upon making the world so healthy that it will have less and less need for the doctor.

The scientific pioneers in medicine are year by year plotting the eradication of diseases that were the source of bread and butter for their predecessors.

The old doctor made money attending diphtheria cases.

The new doctor prevents diphtheria by a few injections.

Typhoid and tuberculosis tell the same story—diseases that once meant hundreds of visits for doctors are coming under the control of medical science.

Supervision of the health of school children, the employment of district nurses and social workers—all are part of the picture of a profession losing its life as a vast body of private practitioners but saving its life and its dignity in a great adventure in health building and disease prevention.

And there are still other sayings of the great Galilean that are not as paradoxical as they sound.—*Glenn Frank, in Evening World. Medical Times,* April 1929.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Pediatrics

Accessory Sinus Infections in Children.—The present epidemic of upper respiratory tract infection serves to call attention to accessory sinus infections, particularly in children. We think of children as having rudimentary or undeveloped accessory sinuses, but the work of Marriott and Dean demonstrated that children may have sinus development even in late infancy. A simple myringitis is a very common sequel to a mild coryza, and may go on to a definite otitis media of a serous or purulent type.

In every instance of upper respiratory tract infection of infants or children the ears should be carefully examined, using a head mirror and ear speculum or, better still, an electric otoscope. This is a very simple procedure, and one who is familiar with the normal ear drum of an infant or of a young child can readily recognize any abnormal condition.

In such upper respiratory tract infections an associated diarrhea or an unexplained temperature should make one suspicious of ear inflammation. Response to appropriate treatment is surprisingly prompt. Topical applications, such as glycerin or hot irrigations, or incision when the drum membrane shows a definite bulging that is indicative of retained fluid, is rapidly followed by relief of all symptoms and by a sharp drop in temperature.

The discharging nose and the postnasal drip of mucus result in an irritating cough, particularly when the child lies down at night and when he awakens in the morning. Careful examination of the nasal passages will show that the turbinates are somewhat congested and swollen, and there is more or less mucopurulent material in the nasal passages. If the child has been infected with the so-called common cold with persistent nasal discharge after his tonsils and adenoids presumably have been removed, one may think that removal of the adenoids has not been complete. A careful digital examination, however, will show that the discharge comes from the nose. Occasionally, clouding of the antra of Highmore or, in an older child, clouding of the frontal sinuses is shown by x-ray. Too much reliance cannot be placed upon a negative x-ray finding as frequently in acute inflammations of the sinuses no shadows are cast though the sinuses be filled with mucopurulent material.

Study of the accessory sinuses in children should be made with the same degree of care as is necessary in diagnosing an obscure lesion of the chest or abdomen.

A. J. Scott, Los Angeles.

Proctology

Hirschsprung's Disease.[1]—This condition is variously known as Hirschsprung's disease, idiopathic congenital dilatation of the colon, megacolon, etc. It is an interesting and definite entity and, although its most characteristic manifestations may be postponed occasionally till adult years, the disease can be demonstrated usually shortly after birth.

The characteristic symptoms are inveterate constipation, infrequency of bowel movements, and great distention of the abdomen. Pathologically there is enormous dilatation and hypertrophy of the colon which, though most common in the sigmoid, may involve the rectum below as far as the anal sphincters and above a portion of the ileum. In fact, should the most satisfactory of surgical procedures be carried out, namely, colectomy, the ileum may later be affected by a similar hypertrophy and distention.

The cause of this peculiar condition is unknown. Rarely there has been discovered an apparent cause, such as a muscular contracted ring at the rectosigmoid junction. Dilatation of this has relieved much of the distress.[2] More often, however, pathologic changes causing obstruction of the colon, such as tumor, fissure of the anus, chronic volvulus, etc., will neither produce the prolonged constipation nor the degree of abnormal variation which is characteristic of Hirschsprung's disease. This appears to be intrinsic in the walls of the bowel, and has hence given the impression that it is due to a neuromuscular dyscrasia.

Medical treatment may certainly render the majority of patients comfortable although anatomic cure will not result. Such treatment consists mainly of enemata for evacuating the powerless colon. These must be given no less than once a day. The mortality with conservative treatment is still greater than that with surgical treatment, and Finney[3] declares that the latter is three times as effective in curing the disease.

Surgical measures have varied from appendicostomy and colostomy to short-circuiting operations such as ileorectostomy and colectomy. Of these, removal of the distressing and intoxicating large bowel is the most beneficial. The disease extends often too near the anus for a suitable short-circuiting operation, and the bowel most often will not empty itself even through an artificial opening.

Recently a new treatment has been brought out which appears to offer considerable possibilities. It is the application of lumbar sympathetic ganglionectomy and ramisectomy, and was developed through the observation by Royle,[4] that patients

suffering from spastic paralysis were also definitely constipated. Excessive action of the sympathetic nervous system fixes the posture in the large bowel due to the accumulation of feces. A removal, therefore, of this hypertonic nervous control should abolish the lack of muscular recoil and allow peristalsis to proceed.

Of thirteen patients so afflicted, eleven were relieved of their constipation after destruction of sympathetic rami and ganglia.

Following this observation Wade and Royle [5] planned a special operation for eliminating the action of the lumbar sympathetic system in a case of Hirschsprung's disease. The patient was relieved of the marked constipation and was able to do without further enemata. More recently Judd and Thompson [6] reviewed the cases of this disease which were treated at the Mayo Clinic. Viewing the radical operation on the colon as a high risk, they tried sympathetic neurectomy. Two patients with Hirschsprung's disease received decided benefit, and within two weeks of the operation were able to have bowel evacuation without enemata or laxatives. In the first patient, the second, third, and fourth lumbar sympathetic ganglia were removed with their communicating nerves on one side. In the second patient the ganglia and nerves were removed on both sides. The latter patient had the entire colon involved.

M. S. Woolf, San Francisco.

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Bacteriology

Oral Vaccines.—Successful immunization by oral administration of vaccines has been the goal of extensive laboratory and clinical research. Conflicting clinical reports are available as to the value of such vaccines. Suggestive experimental data as to a possible explanation for this lack of clinical agreement have recently been reported by Fränkel [1] of the Cancer Institute, University of Berlin.

Fränkel found that mice given massive oral doses of Shiga vaccine develop no immunity, but become, if anything, more susceptible. With small doses no effects are obtained. It is only with medium sized doses that a distinct immunity develops.

Whether or not his results are applicable to human medicine has not been determined.

W. H. Manwaring, Stanford University.

REFERENCE

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Surgery

Observations on Treatment of Gastric and Duodenal Ulcer in Some European Clinics.—Although the treatment of gastric and duodenal ulcer follows along well-recognized lines in the various European clinics which I recently visited, it has not been placed upon an entirely uniform basis. The majority of European surgeons are doing either resection or excision combined with gastro-enterostomy for gastric ulcer. It was only at Hohenegg's clinic in Vienna that simple gastro-enterostomy is being done in some cases in which the gastric ulcer could be readily excised or resected.

The treatment of duodenal ulcer varied to a greater extent. There are three main schools of treatment for duodenal ulcer—the conservative, the radical, and the group between the two. That no absolutely sound principles have been arrived at in the treatment of duodenal ulcer is shown by the various methods used, and is perhaps best exemplified by what has happened at Bier's clinic in Berlin. There they have changed from doing a simple gastro-enterostomy in cases of duodenal ulcer to the radical method of resection, then back again to doing gastro-enterostomy, and at present they take a stand midway between the two.

At the clinics which I visited in Liverpool, Leeds, Edinburgh, Glasgow, and London, I saw only conservative methods in the treatment of duodenal ulcer. Sir Berkeley Moynihan, Walton, and other English surgeons are performing gastro-enterostomy for duodenal ulcer, and their results are good. The occasional occurrence of a jejunal ulcer following this procedure is acknowledged, but the percentage of such ulcers is low, being placed between one and three per cent. As Moynihan expressed it, even if one adds the per cent of occurrence of jejunal ulcer to the low per cent of mortality of gastro-enterostomy, the total percentage is much lower than the per cent of mortality following resection even in the best hands. The English surgeons believe that in properly selected cases the results of gastro-enterostomy are excellent.

Wilkie at Edinburgh is also conservative in his treatment of duodenal ulcer, but in recent years he has been doing a gastroduodenostomy instead of a gastrojejunostomy. In this operation he joins the anterior portion of the stomach near the pylorus to the second portion of the duodenum about opposite the ampulla of Vater. In this procedure it is necessary to mobilize the second and third portions of the duodenum, which can readily be done by incising the peritoneum along the outer or convex border of the duodenum. Wilkie feels that this procedure offers all the advantages of a gastrojejunostomy and practically eliminates the danger of the occurrence of a secondary or stomal ulcer because the acid stomach contents are emptied into the intestine near the same point where the alkaline secretions, bile, and pancreatic juice enter the bowel. The simpler forms of plastic operation are not looked upon with much

favor, although they are occasionally used by some of the surgeons.

Surgery in cases of gastric ulcer is quite uniformly the same throughout England. It is felt that, if possible, a gastric ulcer should be removed. This is done either by excision or partial resection of the stomach. Moynihan believes that the percentage of gastric ulcers which may become malignant is as high as 21.8 per cent; Walton places it at 15 per cent.

It is incorrect to refer to the radical treatment of duodenal ulcer as the Continental method, as there are a number of Continental surgeons who are conservative in their treatment of duodenal ulcer. On the other hand, it is probably true that the German, Austrian, and Swiss surgeons on the whole are more inclined toward the radical school. Finsterer in Vienna and Von Haberer in Düsseldorf believe that when a resection can be done for duodenal ulcer it is the best method of treatment. Von Haberer prefers to do a Billroth I type of operation when possible. Finsterer likes to do his own modification of the Billroth II. Both of these men are quite enthusiastic about this method of treatment of duodenal ulcer and apparently their results are very good. Finsterer and Von Haberer both believe that the results following resection are more likely to be good in cases with extensive lesions than in those with small lesions, even if the symptoms in the latter case are very pronounced.

Professor Rehn in Freiburg is one of the prominent German surgeons who is conservative in his methods of treating duodenal ulcer. He states that no patient should die as a result of an operation for ulcer. He believes that all ulcer patients should be very thoroughly investigated and should be given every opportunity of being cured by medical methods before surgery is resorted to. Professor Henschen in Basel is also inclined toward the conservative school.

Professor Smidt at Guelike's clinic in Jena, Professor Rahm at Kuttner's clinic in Breslau, Professor Holbaum at Payer's clinic in Leipzig, and a number of other German surgeons take a stand between the radical and conservative schools. They feel that at least in selected cases resection either by the Billroth I or Billroth II methods or their modifications is the best treatment of duodenal ulcer. They also do gastroenterostomy in certain cases where there is a marked pyloric stenosis. They admit the occasional occurrence of jejunal ulcer following resections by the Billroth II or Polya methods, and also the occasional recurrence of ulcers following all methods. The risk of resection, they admit, is somewhat greater, but they feel that in selected cases the better results justify this procedure. In gastric ulcer, resection is the operation of choice. Most of the German surgeons do not feel that many gastric ulcers become malignant. The association of malignancy and gastric ulcer is considered an incidental occurrence rather than a secondary one.

The cause of gastric and duodenal ulcers is still being widely investigated. Konjetzny's theory of gastritis and duodenitis as a primary lesion has not been widely accepted, although his pathological findings are not disputed. Reischauer at Kuttner's clinic compares the ulcer syndrome to that of bronchial asthma and believes it possibly due to some dysfunction of the vagus. The ulcer syndrome is hypermotility, hypersecretion, and spasm. He believes this syndrome is of nervous origin. Ulceration is of secondary occurrence and is probably due to other factors, mechanical or functional, and need not always be present, even in patients with a typical ulcer complex.

Many of the surgeons who believe in resection for duodenal ulcer consider the acid factor one of the most important in the causation of ulcer. Resection of the pyloric end of the stomach reduces acidity more than any other operative procedure. The pyloric end of the stomach, while not the chief acid-bearing area, in some ways seems to control the secretion of acid.

GUNTHER W. NAGEL, San Francisco.

Fake Cures Still Offered to Public.—Though the Indian medicine man orating from the tailboard of a traveling drug store is a thing of the past, the American public is still spending millions of dollars for fake farm stock remedies, and numerous would-be medicine men are continually cropping up with money-making fakes in the field of farm drugs.

Professor Jaffa, whose state bureau activities are carried on from the University campus because of its central location and the convenience of large laboratories, states that this state is no exception, and that the quack remedies found elsewhere in the United States, usually have their counterparts in California.

Farm Protection Not Well Known.—Doctor Dunbar said in part: "The public frequently hears of government action in ridding the market of medicines for human use, when these so-called remedies have been proved harmful or worthless. Less often has it heard of the important work being carried on to protect farmers from many of the worthless concoctions flooding the market and for which impossible claims are made for the cure and prevention of every sort of animal disease."

Recently, he points out, action was taken against a manufacturer who advertised a remedy in the following words, "Do you want to kill hog worms the easiest, surest, quickest way? Here is the cheapest and best cure and preventive for worms in hogs that your good money can buy." The remedy thus characterized proved on analysis by federal chemists to containing nothing that could be used to control worms.

Tremendous Profit in Fakes.—Professor Jaffa states remedies with as little value are constantly coming up for approval in California, and except for the action of the Bureau of Food and Drugs would be placed on the market. One such remedy devised for the cure of chicken diseases, costing the manufacturer about 10 cents to make, and selling for several dollars, was found to contain insufficient chemical matter to have any effect on the fowls when used according to the directions.

Doctor Dunbar cites another case in which an alleged cure for contagious abortion in cows proved to be nothing more than brown sugar and wheat bran. A package of the cure weighing nine and one-half pounds, and costing 40 cents to manufacture, was offered for sale at $5. Before this trade was stopped the firm reported their sales to have averaged $15,000 a month. He stresses the fact that there are no known drug remedies for contagious abortion in cattle, hog cholera, influenza of hogs, horses and other animals, tuberculosis of cattle and poultry, distemper of dogs, cats and foxes, heaves of horses, bacillary white diarrhea of chickens, fowl cholera, roup or diphtheria, chickenpox, or blackhead of turkeys.—*U. C. Clip Sheet.*

STATE MEDICAL ASSOCIATIONS

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COMPONENT COUNTY SOCIETIES

CONTRA COSTA COUNTY

The April meeting of the Contra Costa County Medical Society was held in Martinez on the evening of April 9.

Dr. Albert Rowe of Oakland gave a most instructive paper on "Allergy," accompanied by lantern slides. It was indeed a scientific treat to hear one who has so much enthusiasm about a subject upon which he has accomplished much. Stress was laid upon the not too well known fact that many abdominal conditions are caused by allergic conditions. This should ever be before the mind of the general practitioner before contemplating surgery.

Dr. G. L. Coates of Martinez was voted a member of the medical society.

A delightful supper was served by Mrs. John Bland of Martinez at the conclusion of the meeting.

S. N. Weil, *Secretary.*

FRESNO COUNTY

The meeting of the Fresno County Medical Society was held in the Hotel Californian on the evening of April 2, with about thirty members present. Dinner preceded the meeting.

An amendment was made to the by-laws which makes the medical ethics of this society conform to those of the California Medical Association as well as the American Medical Association.

Dr. F. R. De Lappe of Modesto, member of the California Medical Association Council representing this district, gave a short talk outlining the work the Council is doing.

Dr. Edmund Butler of San Francisco gave an interesting talk on the use of *Bacillus welchii* in acute obstruction of the abdomen.

Dr. Miley Wesson spoke on the surgery of the prostate, and illustrated with a large number of slides.

J. M. Frawley, *Secretary.*

KERN COUNTY

The regular meeting of the Kern County Medical Society was held Thursday evening, March 21, in the court room of the Kern General Hospital, Dr. J. M. Kirby presiding.

Twenty members of the society were present.

The secretary's report was read and approved.

A letter from the chairman of the Women's Club at McFarland, asking that the society furnish a speaker some time soon for one of their club meetings was read. Doctor Kirby called for volunteers, but no one responded.

A letter from the state medical association enclosing a letter from Dr. J. Norman Henry, chairman of the American Medical Association committee on the care of indigent physicians, was read; also Doctor Henry's letter. So far as we could determine there were no indigent physicians in Kern County.

It was voted by the society to change the regular meeting night for the month of April from Thursday the 18th to Friday the 19th in order that Dr. Emmett Rixford of San Francisco might be able to address us.

Resolution

The following resolution concerning the death of Dr. Francis A. Hamlin was read and unanimously passed by the society:

Whereas, It has pleased an all-wise Providence to remove from our midst a prominent member of this society in the person of Dr. Francis A. Hamlin, who died at his home on the first day of February, 1929; and

Whereas, In the death of Doctor Hamlin we have lost one of our most tireless and influential workers for the interests of scientific medicine, and for the perpetuation of high and broad standards of practice; and

Whereas, In his death, not only this society, but the community has lost a man whose intellectual and scientific attainments have made him an influence for the best in both professional and community affairs; therefore, be it

Resolved, That we join with his many friends in this expression of our grief at the passing of our beloved colleague, and that we extend to his family our sincere sympathy in their bereavement; and be it further

Resolved, That this resolution be spread upon the minutes of the society, and a copy be sent to the family of Doctor Hamlin.

Doctor Kirby requested the society to stand and engage in one minute of silent prayer in memory of Doctor Hamlin.

It was moved by Doctor Compton, and seconded by Doctor Gundry, that Doctor Hamlin's obituary be written and sent to California and Western Medicine for publication. This motion was passed, and Doctor Gundry was appointed to write the obituary.

Dr. W. H. Thearle, of Los Angeles, formerly of the Fitzsimmons Hospital at Denver, Colorado, addressed us on surgical collapse in pulmonary tuberculosis. He showed us slides covering quite a number of cases. After doing one hundred and fifty-four of these cases his results were that about one-third recovered, one-third improved, and one-third remained the same or became worse. The tendency now is not to consider these operations a last resort but to do them earlier than formerly, thus insuring much better and more lasting results. He concludes that if there is no definite improvement shown within six months to a year, if the case is unilateral, it is wise to resort to collapse.

A vote of thanks was given Doctor Thearle for his interesting discussion. The society then adjourned to the dining room for refreshments.

Edward A. Schafer, *Secretary.*

LOS ANGELES COUNTY

The Los Angeles Obstetrical Society held a special meeting on the evening of Wednesday, April 3, in order to permit hearing Dr. J. P. Greenhill of Chicago. Doctor Greenhill brought films developed at the Chicago Lying-In Hospital through the coöperation of the Eastman Company, the funds being given in part by the alumni of that institution. The one shown was "Face Presentation with Conversion and Later Forceps Delivery." The operative manipulation was made clear by inserts of pelvis and fetus, so that for teaching purposes the development of these films would seem of paramount importance. Doctor Greenhill answered questions as to steps and technique, and was most cordially received.

Dr. E. M. Tarr discussed "The Importance of Vitamin B in the Feeding of Nursing Babies." Since this element does not come through in breast milk or cow's milk, it should be added to secure proper weight gains and insure vigorous infants. Experimental data includes three series on babies, and one in which

twins of the same weight were fed one as control and one with vitamin B added, the latter gaining more rapidly than its twin.

Dr. E. K. Shelton, associate of Doctor Engelbach of St. Louis, discussed "Endocrine Disturbances as Related to Pregnancy." Owing to the lateness of the hour his paper was not discussed, but was enthusiastically received. Many endocrine disturbances can be readily recognized, particularly by pediatrists, and should be treated earlier than it is usual.

Doctor Greenhill also was tendered a luncheon by a group of obstetricians, at which time another film on craniotomy was shown.

William Benbow Thompson,
Secretary Los Angeles Obstetrical Society.

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SACRAMENTO COUNTY

The regular monthly meeting of the Sacramento Society for Medical Improvement was held at 8 p. m. at the Del Paso Country Club on the evening of March 16.

As is the custom of the society, this annual banquet meeting omitted the regular business program.

Dr. J. Thom was master of ceremonies. The entertainment was very appropriate for the occasion. Local talent by some of the members of the society was ably supported by a radio program given by Dr. F. Gundrum of our society, and Professor Schnitzel and F. Watanabe, the KFRC radio artists.

Following the banquet the members enjoyed themselves for several hours, and all admit having had an excellent time.

Hans F. Schluter, *Secretary.*

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SAN DIEGO COUNTY

On March 19 the monthly meeting of the staff of Mercy Hospital, San Diego, convened in the nurses' auditorium. Doctors Clark and Eager of the program committee presented a complete outline and review of nine hundred cases of appendicitis operated upon in the Mercy Hospital during the past several years. Following comments by the committee in regard to the character of the case records at hand, the subject was discussed by the general staff.

The regular monthly meeting of the Scripps Memorial Hospital was held March 18. Following the hospital report a very interesting program was presented by Dr. Ray C. Lounsberry on the subject of "Cutaneous Malignancy About the Face and Neck." His remarks on diagnosis and treatment and end-results were amplified with illustrative lantern slides. Discussion was headed by Doctors Newton, Francis Smith, A. B. Smith, and Holder. Refreshments were served at the close of the meeting.

Following the March monthly dinner the medical society was treated to an enlightening discourse on "Endocrinology," by that master of the subject, Dr. William Engelbach of St. Louis. The subject, copiously illustrated by lantern slides, led his audience to believe that we are really approaching some practical application of our knowledge of this fascinating subject, which has been so tremendously exploited by the quack and the irregular.

The San Diego Academy of Medicine, during the last week of March, presented Dr. Arthur L. Bloomfield of Stanford University for three successive evenings. Doctor Bloomfield rehabilitated the subject of the study of gastric secretion in such a way as to give it its rightful position as a valuable diagnostic measure. The doctor's work along this line is too well known to require detailed notice, but the size and character of his audience on the two evenings on which he discussed gastric secretion amply testified to the interest in the subject when presented by a master. The third evening Doctor Bloomfield devoted to a presentation of our practical working knowledge of the infections of the upper respiratory tract, minutely analyzing our knowledge of the etiology of the various infections and the validity of their vaccine treatment. The San Diego profession will always have a glad welcome for Doctor Bloomfield.

Robert Pollock.

SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at 8:30 o'clock, April 4, in the Medico-Dental Club hall, 242 North Sutter Street, Stockton.

The meeting was called to order at 8:30 o'clock by Dr. C. V. Thompson, president, presiding. Thirty-four were in attendance. Those present were: Doctors N. P. Barbour, J. W. Barnes, E. L. Blackmun, C. A. Broaddus, Fred J. Conzelmann, J. D. Dameron, J. F. Doughty, C. F. English, F. T. Foard, P. B. Gallegos, Minerva Goodman, H. L. Gregory, Samuel Hanson, C. D. Holliger, J. P. Hull, H. E. Kaplan, B. M. Krout, G. H. LaBerge, R. V. Looser, R. T. McGurk, A. H. McLeish, F. S. Marnell, J. E. Nelson, F. J. O'Donnell, B. J. Powell, Dewey R. Powell, S. F. Priestly, George H. Sanderson, John J. Sippy, Hudson Smythe, N. E. Williamson, K. W. Hidy, Paul R. Noetling, and Drs. Chauncey Leake and John Homer Woolsey, guests and speakers of the evening. The minutes of the previous meeting were read and approved.

The committee on admissions reported favorably on the application for membership of Dr. K. W. Hidy. The chair, in accordance with the constitution of the society, declared Doctor Hidy duly elected an active member of this society.

The transfer of John W. Newton from Yuba-Sutter County Medical Society was read. Moved by the secretary that Doctor Newton be accepted as a member by transfer. The motion was duly seconded and carried.

Dr. Dewey R. Powell, acting for Linwood Dozier, chairman of the Constitution Committee, reported that the committee had carefully considered the proposed constitution and by-laws of the California Medical Association and were in accord with the constitution and by-laws proposed, and stated they had certain suggestions to make in the way of changes. Doctor Powell moved that the suggestion of the changes to the proposed constitution and by-laws be submitted in writing and that the secretary be instructed to mail a copy of the report to the secretary of the California Medical Association and one copy to each of the state delegates for their guidance. The motion was duly seconded and carried.

A communication addressed to all county secretaries from the California Medical Association relative to federal tax on earned incomes was read and referred to the board of directors for consideration and action.

The chairman presented Dr. Chauncey Leake, professor of pharmacology, University of California School of Medicine, who spoke on "The Recent Advances in Pharmacology."

In all fields of medical science great progress has been made in the last quarter of a century. Almost daily new facts are being discovered, new theories are being tried out and new attempts at treatment are being made, and pharmacology is no exception. The number of medicinal products—anodynes, hypnotics, etc.—placed on the market under various trade names is enormous. Many of them good, some not so good. Most of these products cost two to five times as much when bought under the trade name as under the pharmaceutical name, but are not any more effective. The physician must bear in mind the patient's pocketbook as well as the cure of his disease. Science must be the prescriptive and regulative principle in the use of drugs as in all other health measures, public and private. Only those drugs that from accurate knowledge and experience have proved to be efficacious should be used. Do not prescribe every drug that is brought to your attention. Take a critical attitude toward all new agencies. Doctor Leake's talk was a very timely one and exceedingly instructive and practical.

The chairman presented Doctor Woolsey, who spoke on "Earlier Diagnosis of Cancer of the Stomach."

Doctor Woolsey reviewed very briefly the facts of sixty-seven patients which came under his own personal observation. In the early eighties the prevailing attitude toward the cancer situation was that of pessi-

mism, but since then great advance in technique and correct diagnosis by x-ray has been made. The diagnosis of cancer of the breast and of the rectum is made much earlier now than formerly. Cancer appears in the majority of cases after the age of forty years; it occurs earlier in women. Duration of the symptoms before the patient enters the hospital varies from one month to three and one-half years. Even after consultation of physicians there is often delay from three months to three years because of improper treatment by diets. The common complaints of the patients are pain, vomiting, loss of weight, loss of strength, anorexia, and the like. In examination of the patient the history is the most important, as it is in all gastro-intestinal disease. Next in importance is a good radiological diagnosis, and an analysis of the gastric motor function and gastric chemical function. The latter is more important in ulcer. The physical examination is of little value. Of the laboratory tests, the finding of occult blood in stool is of the utmost significance; it means cancer. The Ewald meal is a valuable aid. Cancer of the duodenum is rare. Duodenal ulcers can be treated medically; gastric ulcers should be treated surgically. There has been a great advance in the recognition of the danger signals by our public and in education of the medical profession to take a careful trustworthy history, radiological examination, and the examination of stools for occult blood. Any person forty years and over, if he has indigestion should receive a thorough and complete examination. The doctor illustrated his discussion by lantern slides, which explained much in a short time and illustrated his subject much better than any amount of theoretical discussion.

Doctors Dameron, McGurk, and Powell discussed the papers.

The chair expressed appreciation and thanks, in behalf of the society, to the speakers of the evening.

There being no further business the meeting adjourned at 10:45 o'clock.

Fred J. Conzelmann, *Secretary.*

SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held on Monday evening, March 11, at the St. Francis Hospital, with President N. H. Brush presiding.

The minutes of the previous meeting were read and approved.

A communication from Charles A Gray, secretary of the Napa County Medical Society, was read and ordered filed.

A communication from the secretary of the Southern California Medical Association inviting our membership to attend its meeting April 5 and 6 at Riverside was read and ordered filed.

A communication from the Santa Barbara County Welfare Commission requesting a committee to meet with the Welfare Commission on Wednesday evening, March 13, at the supervisors' chamber, in the courthouse, was read. Upon discussion, it was moved, seconded, and unanimously carried that the president appoint a committee to confer with this commission and to report back to the medical society at the next meeting with or without recommendations, as they see fit. The president then appointed a committee consisting of Doctors Eaton, Freidell, Markthaler, and Ullmann.

Dr. Ludwig Kast, professor of clinical medicine, New York Postgraduate Hospital Medical School, gave a most interesting and illuminating discourse on "Recent Investigation in Problems of Liver Function," and gave a most graphic picture of what may be expected in the practice of medicine fifty years hence.

His paper was discussed by Doctors Ullmann, Koefod, Evans, Stevens, and Pierce.

There being no further business the meeting adjourned.

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The regular meeting of the Santa Barbara County Medical Society was held on Thursday, April 4. This date was chosen instead of the regular meeting date of April 8, as it was the only available evening upon which Doctor Engelbach of the Engelbach Clinic, St. Louis, could address the society.

The members assembled at a dinner meeting at the University Club at 6:30 o'clock.

There were present at the dinner twenty-four members and three guests, several other members and guests coming in after the dinner.

Doctor Brush then introduced Dr. William Engelbach, who gave a most interesting and instructive talk that held his audience spellbound for over two hours. At the conclusion a rising vote of thanks was extended to Doctor Engelbach. He then answered various questions asked by different members of the society.

Dr. Ludwig Kast of New York and Doctor Stewart, associated with Doctor Engelbach, were also present at the meeting, and Doctor Kast expressed very forcibly his appreciation of the work being done by Doctor Engelbach.

There being no further business the meeting adjourned. W. H. Eaton, *Secretary.*

SANTA CRUZ COUNTY

The bimonthly meeting of the Santa Cruz County Medical Society, presided over by President Fehliman, was held at the Casa del Rey, Santa Cruz, Thursday evening, April 18.

Following dinner the society was addressed by the guests of the evening, Doctors V. G. Alderson and J. A. Dougherty of Oakland. The former presented a paper on the general subject of "Allergy," emphasizing the various clinical manifestations one might find due to protein sensitization. Doctor Dougherty presented case histories of several patients illustrating vesical allergy. A general discussion of the subjects followed. Allergic reactions are especially interesting to those of us practicing in this seacoast town because we not only meet with many cases of pollen sensitivity, but also an appreciable number of cases which show definite reaction to the ingestion of shellfish and other sea foods.

Tentative plans for a four-county meeting to be held during the summer were discussed. At Doctor Dowling's suggestion it was decided to invite the county societies of Monterey, San Benito, and Santa Clara to meet with us here in Santa Cruz during the month of June. Further details will be reported later.

Construction will soon start on a new and modern hospital in Santa Cruz. The Santa Cruz Hospital Association, Dr. M. J. Gates, president, is planning the erection of a thirty-five-bed hospital, which will occupy an imposing site on one of the main thoroughfares. The completion of this institution will give the city of Santa Cruz two modern hospitals, the Hanly Hospital being but five years old.

Dr. M. F. Bettencourt of Watsonville is spending four months at eastern centers taking postgraduate work in his specialty of eye, ear, nose, and throat work.

Dr. W. R. Congdon, county coroner, attended the annual meeting of the State Coroners' Association held at Riverside in April.

Samuel B. Randall, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Alameda County

Newton, Earl B. Steven, Robert A.
Stratton, James Malcomb

Los Angeles County

Baker, David A. Edson, Philip
Bergstrom, Frederick K. Emery, Christopher E.
Balkins, Almon James Hartman, William W.
Baumgartner, Conrad J. Hessel, Victor E.
Bross, Rachel B. Houloose, James
Burwell, L. C. Johnson, Clarence E.
Carhart, Earl C. Keating, Vincent J.
Chambers, Stanley O. Lewis, E. Benjamin
Chase, Raymond E. McLeod, Frederick L.
Davis, H. H. Miller, E. Merrill
Dooley, Frank S. Miller, Roy Robert

Nixon, Albert Crombie
Parks, Floyd Rosewell
Read, Francis T.
Rook, Charles W.
Shipley, Roy E.
Shotwell, Cecil L.
Singer, Harry
Smiley, Henry C.
Stephens, Walter C.
Syman, Leo W.
Tatro, Raymond F.
Thearle, W. H.
Thomason, Sidney Dale
Thorson, John A.
Uhls, Russel Todd
Vinetz, Joseph C.
Walker, J. Edmund
Wallentine, Nathaniel R.
Watson, Leigh F.
Whalman, Harold F.
Witt, Eric W.
York, Margaret M.

Orange County—G. W. Olson.

Riverside County—Leslie J. Clark.

San Bernardino County—Ross C. Martin.

San Diego County—Deon A. Crew and Charles Walker Lane.

San Francisco County—Julius Goldsand, Lewis I. Grodsky, David E. Matzke, Charles C. Mohun, Jr., and Florence Dunlop Strickler.

San Joaquin County—R. L. Owens and E. J. Papermaster.

Siskiyou County—A. A. de Lorimier.

Stanislaus County—J. K. Morris Jr., and A. J. Colberg.

Transferred Members

Marcus W. Pascoe, from Los Angeles to Kern County.

J. Emmet Clark, from Stanislaus to Los Angeles County.

Olin H. Garrison, from San Joaquin to Alameda County.

R. C. Kirkwood, from San Joaquin to Alameda County.

Ernest M. Hall, from San Francisco to Los Angeles County.

Raymond R. Scott, from San Francisco to Fresno County.

M. C. Terry, from Los Angeles to Illinois.

Isabel P. Brier, from Alameda to Los Angeles County.

Robert O. Le Baron, from Mendocino to Santa Clara County.

Victor W. Hart, from Sacramento to Siskiyou County.

William H. Zieber, from San Mateo to Santa Clara County.

John W. Newton, from Yuba-Sutter to San Joaquin County.

H. Spencer Hoyt, from Monterey to Los Angeles County.

Resignations

William P. Burnham, from San Francisco County.

Harry E. Breese, from San Diego County.

Fred J. Walter, from San Diego County.

Deaths

Cleverdon, Ernest. Died at San Diego, April 7, 1929. He was a graduate of the University of Michigan Medical School, Ann Arbor, 1903. Licensed in California, 1911. Doctor Cleverdon was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Gross, Louis. Died at San Francisco, March 23, 1929. He was a graduate of the Cooper Medical College, San Francisco, 1897. Licensed in California, 1898. Doctor Gross was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

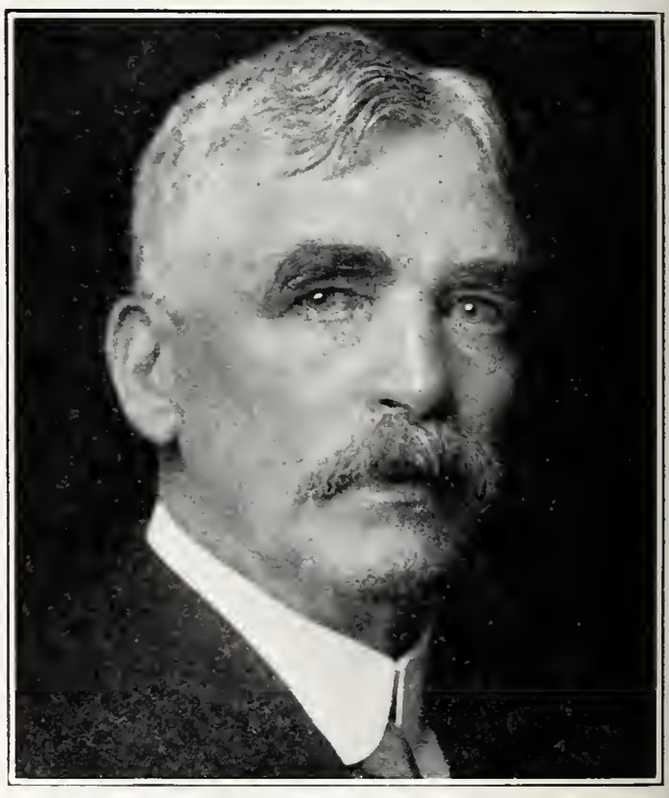
Trew, Niel Charles. Died at Los Angeles, April, 1929. He was a graduate of the University of California Medical School, San Francisco, 1898. Licensed in California, 1898. Doctor Trew was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Wells, Kathryn Gunby. Died at Los Angeles, February 28, 1929. She was a graduate of Drake University College of Medicine, Iowa City, 1913. Licensed in California, 1921. Doctor Wells was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

OBITUARY

In the passing of Doctor Huntington (April 19, 1929), California has lost another of her commanding figures—surgeon and citizen. He is the last of that group of remarkable men who, in this community at least, were active through the transition from septic to aseptic surgery.

Born in Rockford, Illinois, January 16, 1849, he received his Bachelor's degree in the University of



Thomas W. Huntington
1849-1929

Vermont in 1871; his medical degree from Harvard in 1876. Not long thereafter he came West, became the surgeon of the Central Pacific in Wells, Nevada, and later, from 1885 to 1899, was the chief surgeon of the Central Pacific and afterward the Southern Pacific Hospital in Sacramento.

During this period he did much of his best work, and some of us, as medical students, remember hearing of a surgeon in Sacramento, who removed an inflamed appendix on the diagnosis of appendicitis. This was the first operation for appendicitis done in California. It was about 1890, at a time when in our medical curriculum the word "appendicitis" was not once heard.

In 1899 Doctor Huntington was made professor of clinical surgery in the University of California, and moved to San Francisco, where he has resided ever since. He occupied the Chair of Surgery until the reorganization of the medical faculty of the University of California in 1912. In 1910 he became chief surgeon of the Western Pacific Railroad, which position he held until his death.

Doctor Huntington, during his middle life, carried on an extensive practice in operative surgery; bold, but not rash, a surgeon of excellent judgment, who perhaps more than any other in this community, in his generation, kept up with the advances in surgical science and art. His experience in the treatment of fractures and of tumors was especially great. His contributions to surgical literature consisted chiefly of numerous reports of clinical cases characterized by careful observation and conscientious effort—in short, sound surgery. A fluent and impressive speaker, he was often called upon for formal addresses. In later life many honors came to him; in 1913 the degree of Doctor of Laws, from his University of Vermont; in 1917 he was sent as a member of an important commission under the Red Cross to Italy; he was a

lieutenant of the Medical Reserve Corps of the United States Army and, during the World War, organized a local faculty under authority of the Surgeon-General for the instruction of reserve medical officers. He was elected Fellow of the American Surgical Association in 1901—was president in 1917.

His wife was Miss Harriet O. Pearson of Wells, Nevada, who with a son and daughter survives him. The son, Thomas W. Huntington, Jr., is living in Capri, Italy, engaged in literary pursuits, and the daughter, Miss Emily H. Huntington, is instructor in economics in the University of California.

At the age of eighty, Doctor Huntington was in full mental and unusual physical vigor—tall, slender, dignified—he promised to enjoy many more years of useful activity. His death, following a serious surgical operation, came as a shock to his many personal and professional friends. For some time past he was engaged in writing an autobiography, which, had it been completed, would have been, and may still be, a valuable contribution to the history of the surgery of western America. EMMET RIXFORD.

NEVADA STATE MEDICAL ASSOCIATION

R. R. CRAIG.....President
W. A. SHAW.....President-Elect
H. A. PARADIS.....First Vice-President
R. P. ROANTREE.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

The regular April meeting of the Washoe County Medical Society was held at the home of Doctor Morrison on the evening of April 9. About thirty members and visiting physicians were present.

The scientific papers were arranged as a symposium on the main topic of "Better Obstetrics." Five papers were presented; four by physicians, one by Doctor Vawter of the veterinary department of the University of Nevada on "Puerperal Eclampsia in Domestic Animals." This latter paper was most scientific and was highly commended. Many lesions common to those of the same disease in the human female were described. But, as in the human eclampsia, there were abundant theories, but no one definite solution of the cause offered.

The program led with the paper by Doctor Howell of Gardnerville on "The Bacteriology of the Puerperal Woman, Why She Is Infected, and Is There Any Standard Method of an Aseptic Delivery?"

The second paper was by Doctor Da Costa of Reno on "Is the Present Increase in Cesarean Section Justified?" Then came Doctor Morrison, the host of the evening, with his paper on "Our Present Knowledge with Reference to Puerperal Eclampsia and Treatment." The last paper was by Doctor McIntyre of Reno, subject "Why Women Die in Childbirth."

The scope of the papers was comprehensive, based upon long years of practice, which is the greatest teacher of all, and a very extensive search of the literature, going back to the early days of Richard Bright, who in 1827 gave the world the first definite distinction between renal and cardiac dropsy. The literature of successive periods was covered by the essayists in dealing with their special subjects.

The paper on "Is the Present Increase of Cesarean Sections Justified?" by Doctor Da Costa was interesting in the particular parallel by citing the birth statistics of the city of Pasadena for the 1924 as given in the *American Journal of Obstetrics and Gynecology*, December 1924, by Doctor Hibben, with the birth record of the entire state of Nevada for 1928. Pasadena had in 1924 a birth record of 1414 cases, with about 70,000 population. In this number there were thirty-one Cesarean sections done, with a mortality of one death. Of the total of the 1414 cases in Pasadena there were 862 cases delivered in the hospital. The remainder in their homes. In Nevada, for 1928, there were 1309 births. Of this number for 1928 there were seventy-two births in the St. Mary's Hospital in Reno with ten Cesarean sections. The number of deaths following Cesarean sections in Reno could not be ascertained, but the deaths for childbirth in all cases in Nevada were recorded as six. The population of Pasadena in 1924 and Nevada in 1928 was about equal. The essayist was very positive in declaring that ten Cesarean sections in seventy-two hospitalized births in Reno was, in his opinion, an unusual percentage, and indicated a catering to the spectacular and the commercial.

It was interesting to note that, in point of attendance, one physician came a distance of about 350 miles. Another about 300 miles. Another nearly 100 miles. One doctor drove over a 6250-foot pass at night. Two others, 60 miles. When one considers that at the time there was a severe spell of snowy weather, it shows an interest in medical affairs. Let the eastern brothers who might consider ten miles a good drive, consider these distances.

The gracious part of the evening followed, with social entertainment prepared for the socicty by Dr. and Mrs. Morrison, assisted by Mrs. Dr. J. L. Robinson. In view of the fact that Dr. and Mrs. Morrison were rejoicing over the release from imprisonment by the rebel army of Mexico of their young son, who had gone there in the youthful spirit of adventure to serve as an army flier, it seemed that the festivity and refreshments were never so good as on this evening. There was more Mocha and Java in the coffee, and the cake was more delicious, and the big cuts of apple pie a la mode were sweeter, and the repast was enjoyed with a rarer gusto than at any meeting which the society has had for many a day.

The society adjourned to meet at the residence of Doctor Rhoades for its May program.

THOMAS W. BATH, *Secretary.*

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

OFFICIAL NOTICE

The secretary of the state association, Dr. M. M. Critchlow, desires to call the attention of all members of all component societies to the scheduled meeting of the state association at Salt Lake City, July 1, 2, and 3, this year. The object of this notice is to suggest to all members that they make arrangements to attend this meeting sufficiently far in advance to insure their being present at that time. The program will be published in the June number of CALIFORNIA AND WESTERN MEDICINE and mailed out to the membership.

COMPONENT COUNTY SOCIETIES

CENTRAL UTAH

A regular meeting of the Central Utah Medical Society was held at the Savoy Hotel, Manti, on April 2.

The following members were present: Doctors Sharpe, Nielsen, McQuarrie, Gottfredsen, Rigby, Sears, and Dewey.

The program for the evening consisted of case reports by members of the society. Doctor Rigby reported a case of hysteria. Doctor Gottfredsen reported a case of trichinosis. Doctor McQuarrie reported a case of appendicitis and diabetes mellitus. Doctor Dewey reported a case of spinal bifida.

The next meeting will be held at Richfield on May 7. H. ASA DEWEY, *Secretary.*

UTAH COUNTY

The meeting of the Utah County Medical Society was held March 13. Interesting medical cases were reviewed.

1. Nine years of diabetes in a boy, observed throughout a course of five years, by Dr. L. L. Culli-

more. A complete case history of the boy from the age of four years, when his condition was first diagnosed, to the present time. The boy was present. An interesting feature was the fluctuating and excessively high blood sugar (—760 mgm.) with frequent coma.

2. Tabulation of recorded data on six epidemic meningitis cases during the past winter, together with a short résumé of meningitis by Dr. Stan Clark.

3. Outline of procedure and results from injection method of treating varicose veins in five cases at the State Mental Hospital by Dr. F. R. Taylor. In these cases 20 per cent sodium chlorid was used with good results.

A second short topic by Doctor Taylor reviewed a case of pulmonary streptothrix. This case was seen last fall, diagnosed from the laboratory findings of the sputum, treated with potassium iodid with good results for one week. Patient did not return for further inspection.

A letter to Dr. J. Hughes of Spanish Fork by the father of a patient was read at the meeting by the doctor. It turned out to be a humorously earnest medical economic discussion by a layman, and illustrated the failure of some members of the county society to adhere to the county fee schedules in their charges to patients.

A short economic treatise on price-cutting in the garage business was read by Doctor Neil, and the analogy to medical economics was discussed.

No formal business was taken up.

* * *

Meeting of the Utah County Medical Society held March 27.

The topic "Allergy and Hay Fever," was presented by Dr. C. E. Barrett, director of the National Laboratories of Salt Lake.

Doctor Barrett has made a plant and pollen survey of Utah County in relation to pollen sensitization and hay fever, and his paper contained very interesting tabulations and anecdotes of special cases of allergic manifestations from his local survey and research.

No business. J. L. Aird, *Secretary.*

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the Convention Room at the Newhouse Hotel, Salt Lake City, March 11.

The meeting was called to order at 8:10 p. m. by President C. M. Benedict. Forty-nine members and six visitors were present.

The minutes of the previous meeting were read and accepted without correction.

M. C. Sexton gave an interesting talk on "Some Newer Methods in the Treatment of Late Toxemias of Pregnancy." This paper was discussed by R. T. Woolsey.

W. A. Pettit read a paper upon "The Present Epidemic of Meningitis," which was discussed by L. L. Daynes, T. B. Beatty, G. G. Richards, B. E. Bonar, G. H. Pace, R. J. Llewellyn, Clark Young, and M. M. Nielson. M. M. Nielson suggested that the substance of W. A. Pettit's report be given to the Salt Lake City newspapers. W. A. Pettit stated that this has been unsuccessfully attempted from time to time, and that recently four of the city newspapers were offered a bulletin and only one newspaper published the report. T. B. Beatty stated that he had offered a bulletin to one of the newspapers setting forth the exact condition of the meningitis epidemic, giving answer to numerous questions asked, the number of cases in town at the present time, and offering proper advice regarding certain prophylactic measures, and that this paper refused to print all of this bulletin, refused to print it except as inconspicuously as possible on an inside page, and when an offer was made to pay for the printing of this article at usual advertising rates it was refused. Sol Kahn moved that this society go on record commending the City and State Board of Health in their stands taken in the present epidemic, and that it does not believe that the schools should be closed at the present time because of this. This motion was seconded and carried.

Mr. Lund, speaking for some visiting members of the Pharmacal Association, stated that he thought this society should be commended for their stand in the present meningitis epidemic, and that something ought to be done to correct the attitude taken by the newspapers. He also asked the society if it would not be possible in the near future for some member of the Pharmacal Association to address this society upon certain subjects which are of interest to members of both organizations. William F. Beer moved that the Salt Lake County Medical Society invite a member of the Pharmacal Association to address it at some meeting in the near future. This motion was seconded and carried.

William F. Beer moved that the society go into executive session. This motion was seconded and carried.

J. P. Kerby, chairman, gave a report of the Fee Schedule Committee appointed by Ex-President Beer. This committee consisted of J. P. Kerby (chairman), J. F. Sharp, F. H. Raley, W. T. Ward, F. L. Peterson, and S. C. Baldwin. The effect of this report was that the committee is convinced that while a not inconsiderable percentage of the members of the Salt Lake County Medical Society is not living up to that schedule, and that while there are a few items that should be increased, such as the charge for ordinary labor and abortion, which they believe should be placed at a minimum of $45 instead of $35, it is futile to make a nominal increase which will not be lived up to by a considerable portion of the members. In this connection the committee asked that the society go on record as condemning unhesitatingly all organizations who offer to give medical and surgical attention to members and their families for very small sums. In conclusion, the committee feels that the subject of "contract medicine" in its broad sense is the most important problem that is confronting the society at this time, and recommends that its further consideration, including the privilege of the committee to ask definite information of society members as to details of contracts be assigned to the appropriate standing committee. Sol Kahn moved that the report be adopted. This motion was seconded and carried.

President C. M. Benedict announced that the next meeting would be held on March 25, at the Bigelow Hotel, Ogden, at 7 p. m., at which meeting there would be an x-ray symposium.

The meeting was adjourned at 10:25 p. m.

* * *

A dinner meeting was held jointly of the Salt Lake and Weber County Medical Societies on March 25 at the Hotel Bigelow, Ogden, at 7 p. m.

After the dinner an x-ray symposium was held. The program was as follows: "Radium Therapy," by W. L. Rich; "X-Ray Therapy of Skin Lesions," by C. J. Pearsall; "Deep X-Ray Therapy," by R. Mark Brown; "Evolution and Evaluation of the Graham Test" (Lantern Slides), by Q. B. Coray; and "X-Ray Diagnosis of the Sinuses" (Lantern Slides), by R. R. Newell of the Leland Stanford University, San Francisco. Barnet E. Bonar, *Secretary.*

UTAH NEWS

The Holy Cross Hospital Clinical Association held its monthly meeting the night of March 18, in the Assembly Room of the hospital at 8 o'clock.

The following program was presented: "Fracture Dislocation of the Frontal Bone," by Doctors Galligan and Johnson; "Premature Separation of the Placenta," by Doctors A. N. Minear and Clayberg; and "Pathological Specimens," by Dr. T. A. Flood.

General discussion of the cases presented followed by the association members. The meeting proved of interest and advantage to those able to attend.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Readers' Forum; California State Board of Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Summer Courses for Graduates in Medicine, University of California Medical School, San Francisco, June 3 to 29.—The fifth annual session of these summer courses for graduates in medicine is offered to meet the ever increasing demand of the medical profession for this opportunity of efficient review and study.

All clinical branches will be covered in regular courses. In addition, clinics and lectures on medical subjects of vital interest will be given at the midday and in the evening. These lectures and clinics will be open to the medical public without charge.

An announcement of courses will be mailed on request. Registration is now taking place. Please address the Dean's Office, University of California Medical School, Parnassus and Third Avenues, San Francisco.

Southern Pacific General Hospital Meeting.—The regular monthly staff meeting of the Southern Pacific General Hospital was held on Wednesday, April 3, at 8:15 p. m. Doctor Hatcher, intern, presented an abstract of the interesting literature for February and March; essentials of the clinical and pathological data of the fatalities for March; Dr. W. T. Cummins, a demonstration of coccidioidal specimens; Dr. William Faulkner, "Thoracic Surgery," with discussion by Dr. Harold Brunn and Dr. D. W. Sooy.

Pan-Pacific Surgical Conference.—In the middle of the ocean there is an exotic garden—tall coco palms, waving banana trees, tall grotesque tree ferns, a weird mixture of flowering trees covered with pink, red, blue, purple, yellow, a rainbow of colored flowers—not a few, waterfalls of them—a great stone wall covered on glamorous moonlight nights with large fragile, night-blooming cereus—not one or two, hundreds of them. This garden is hedged in by tall irregular mountain walls, miles and miles apart, for the garden is large; sharp peaks rising 5000 to 10,000, even 14,000 feet high. Up to 10,000 the very sharpest and tallest and steepest of the peaks are covered by the deepest green verdure. In this garden people move about—brown-skinned natives, the colored kimonos of the Orient, the white skins from dozens of countries, all with kindly faces. They seem happy. The country looks clean and fresh—a paradise—yes—the Paradise of the Pacific—Hawaii.

In this garden surgeons will gather from twenty different countries, each group crossing thousands of miles of ocean to meet in the middle. They will compare notes, discuss better work, better facilities, and better surgery. Each will tell of the best from his own country, hoping to learn something good from another country. Exhibits will be on hand to show the latest and best in hospital organization. How can a hospital insure for its patients the best service? Why do Korean surgeons not operate on liver abscesses? Why does Royle get good results in his spastic paraplegias? (He will illustrate with movies.) Why do not Japanese women ever have breast cancer? Why do soldiers in Hawaii have four times as many ruptured gastric ulcers as troops in other parts? Did you ever hear of the plastic work in Indo-China or the massive tumors removed in China? Do you believe the men in Seattle, San Francisco, or Los Angeles have developed as fine clinics as the country knows? These and many more questions will be placed upon the table for discussion.

The Pacific Ocean is a vast area, but for the first time the men of the medical profession are getting together for mutual stimulation. All the indications are that the stimulations will be different and, perhaps, better than could be had in the same time by the same men in Chicago, New York, London, or Paris. The Pacific area is alive. The world is moving westward.

Hence the first Pan-Pacific surgical meeting will take place in Honolulu, from August 14 to 24. The famous ship, the pride of the Pacific—the Malolo—leaves San Francisco on August 10. Other ships come in from all other ports. Australia is sending a strong delegation including men like Sir James Barrett, Royle, Worrall, Harris, Francis, Furber, and others. Japan, New Zealand, the Latin American countries, Canada, the Philippines, etc., are all sending one or more delegates. Six delegates will come from China and two from Africa.

It will be an unusual gathering. Hawaii will try its best to be a good host.

A Hawaiian feast will replace the usual hotel banquets; a Hukilau—the drawing in by hundreds of people of a net a half-mile long—will replace an afternoon tea; a swim in the surf and rides in outrigger canoes carried on the crest of huge waves, will replace a bus ride; an Oriental Night, with music, drama and color of three Oriental countries by their own students, will replace a show on Broadway; and finally, a trip to a huge smoldering volcano over miles of land split by cracks, with live steam and sulphur fumes constantly issuing, will replace the trip down town.

It will be different—but let the southern ooze get into your veins; let the joy of just living in balmy breezes soothe your nervous spirit; and don't use the word "magnificent" until you have seen Hawaii in in August. NILS LARSEN, M. D., Honolulu.

Notice to Otolaryngologists.—At the invitation of the San Francisco County Medical Society, Eye, Ear, Nose and Throat Section, Dr. Joseph C. Beck of Chicago has kindly consented to give a course in clinical pathology of the ear, nose and throat, with demonstrations of patients as well as slides and films.

The course will be given on July 1, 2, and 3, from 8 to 10 in the morning and from 6 to 7 in the evening. The exact place of meeting will be announced later.

Due to the kindness of Doctor Beck no fee will be charged for the course. It will be limited to otolaryngologists; however, any member of the California Medical Association is welcome. Further details will be published later.

Honor Conferred on Doctor Pinkham.—The selection of Dr. Charles B. Pinkham of the California State Board of Medical Examiners as president-elect of the Federation of State Medical Boards of the United States is a worthy recognition of particular fitness and acknowledgment of his unusual services as secretary of the California board for fifteen years, and his intensive interest in the federation since its organization. His election will give general pleasure and satisfaction.—*Federation Bulletin,* March 1929.

Alumni Dinner.—The graduating class of the medical department of the University of California will be the guests of the Alumni at a dinner to be given on the evening of Saturday, May 11, at the Palace Hotel.

Dr. Ernest M. Hall, Professor of Pathology.—Dr. Ernest M. Hall, pathologist at Saint Vincent's Hospital, Los Angeles, has been appointed professor of pathology and bacteriology of the School of Medicine of the University of Southern California. The appointment, which was announced by Dean William D. Cutter, is in the nature of a promotion since Doctor Hall has been an acting associate professor of histology in the school since its opening in September, 1928.

Doctor Hall received his degree of Doctor of Medicine from Stanford University in 1925. From 1924 to 1928 he was successively assistant, instructor, and assistant professor of histology at Stanford University, pathologist at Palo Alto Hospital, and assistant visiting pathologist at San Francisco County Hospital. In 1928 he became pathologist at St. Vincent's Hospital, Los Angeles.

Doctor Hall has published, in collaboration with others, his investigations on toxic changes in the liver, the edema of paraphenylenediamin, and aortic aneurysm.

The Southern California Medical and Dental Golf Associations held their annual tournament and banquet at the San Gabriel Country Club the afternoon of March 20. One hundred and seventy-five contestants competed.

The scoring was three points to each match. The dentists won the event by thirty points.

Winners of the medical association were as follows:

Class A—L. Felsenthal, low gross 70; A. W. Moore, low net 79—8, 71.

Class B—W. W. Bennett, low gross 68; John W. Crossan, low net 87—14, 73.

Class C—F. Mogan, low gross 75; C. E. Townsend, low net 105—30, 75.

There was a special drawing through the courtesy of Keniston-Root Company for the low gross and low net classes "A," "B," and "C," in both medical and dental associations. This was won by the dentists.

In the absence of President C. E. Toland, M. D., Vice-president C. Hensley, M. D., presided. Lee Hagadorn, M. D., was toastmaster for the evening.

The last medical golf tournament was played at Del Monte, April 20 and 21, between physicians of northern and southern California.

Summer Clinics, Chicago Medical Society.—The Chicago Medical Society will hold a two weeks' clinic at Cook County Hospital June 17 to 29 inclusive. Members of the hospital staff will give the following clinics: Medical and surgical clinics in amphitheaters. Ward walks.

The amphitheater work will be devoted to medical and surgical dry clinics and lectures. Two amphitheaters will be used simultaneously, one for medical and one for surgical clinics. Each clinic will be one hour in length, thus giving four medical and four surgical clinics daily. Operative work will be done during the hours devoted to ward walks. The clinical work will be confined largely to general medicine and surgical subjects.

It is planned to hold six meetings to be addressed by speakers other than members of the hospital staff on such subjects as heart disease, tuberculosis, obstetrics, physiotherapy, gastro-intestinal disorders and possibly diabetes.

A registration fee of $10 will be charged to cover the cost of preparing for and conducting the clinics.

For further information apply to the Chicago Medical Society, 185 North Wabash Avenue, Summer Clinics Committee.

Oakland Medical Building. — Completion of the Summit Medical Building in Oakland has given to the medical profession of that city a building scientifically planned to meet their present and future needs.

The Summit Building is a five-story structure of reinforced concrete, fireproof construction, providing office space for from fifty to sixty men of the medical profession.

Its location at Twenty-ninth and Summit streets offers the advantages of proximity to hospitals and of freedom from traffic congestion, noises, and parking difficulty.

The structure presents a dignified, beautiful appearance. The entrance is directly into a richly furnished, spacious foyer. Corridor floors are finished with vitrified tiling with marble wainscoting, and the interior woodwork is of Bataan mahogany.

All installation and equipment are the result of scientific study of the most modern medical buildings in leading cities of the United States.

MEDICO-LEGAL

PLEA FOR REDUCTION OF FEDERAL TAX ON EARNED INCOMES OF PHYSICIANS

Form of Petition to Congress*

To the Congress of the United States:

We, the undersigned, doctors of medicine of (name of city, medical society, or hospital staff) respectfully present this our petition for a just and equitable modification of the tax laws as they relate specifically to earned incomes.

We are aware that heretofore, due to various reasons, such as the gradual decrease of the national debt, accumulation of a national surplus, and economies effected in the administration of the Government, Congress has, from time to time afforded relief to various groups of the taxpaying public by enacting modifications into the income tax laws.

As a most urgent part of the tax reduction program, we respectfully request that Congress should now lighten the burdens of and give relief to that large body of our citizens who depend on "wages, salaries, professional fees, and other amounts received as compensation for personal services actually rendered."

Furthermore, our experience has convinced us that the existing earned income tax law works injustice and inequity upon the members of our profession, because, among other things:

When a member of our profession dies his stock in trade ceases thereupon to exist;

When he is ill or suffering from physical or other injury he cannot perform his professional services and his income is suspended for the period of his disability.

His income at all times is uncertain, unsteady and unpredictable, and liable at any time to unexpected curtailment or cessation.

He is liable to suffer a lean year and to be taxed a heavy amount in that lean year for the earned income of an unusually prosperous year preceding.

To prepare himself for his life's work he must spend much money and time in order to acquire the knowledge and skill needed for the proper practice of the profession, and this and other items of similar expense, the law does not permit him to enter on his income tax return as reductions, whereas on the tax

* Petitions of this form were distributed and collected by the California League for the Conservation of Public Health. (See also editorial in this issue.)

returns in the case of permanent property or invested capital, or in certain business enterprises, your petitioners are informed such expenditures may be entered as reductions.

And later, when actually engaged in his profession, he must devote a substantial part of his time to study in order to render the high standard of service required in the practice of modern medicine and the care of patients.

Finally, it is obvious as a matter of right and reason that earned incomes should not pay the same rate of taxation as permanent property and invested capital.

And we respectfully submit that the existing earned income tax law is virtually a tax on the talent and skill of the members of our profession, and that we believe it to be excessive, unjust and inequitable; furthermore, it may be said, that doctors of medicine devote their talent and skill to the betterment of public health, which is an asset of the highest importance both to the individual and to the community.

And we realize that whatever arguments herein advanced in support of our petition are, in a general way, applicable not only to ourselves but to all other American men and women who live by earned income.

Wherefore, in conclusion, we respectfully urge in our behalf and theirs, that your Honorable Body investigate the subject thoroughly and to this end grant an adequate hearing for us to present through duly accredited representatives all the facts which will demonstrate the justice of what we ask and convince your Honorable Body to give the relief for which we pray.

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UNITED STATES SENATORS AND REPRESENTATIVES IN CONGRESS*

United States Senators

Hiram W. Johnson (Rep.), 587 Green Street, San Francisco. Term expires March 4, 1935.

Samuel M. Shortridge (Rep.), Elena Avenue, Menlo Park. Term expires March 4, 1933.

Representatives in Congress

Clarence F. Lea (Dem., Rep.), 719 North Street, Santa Rosa ..... First District

Harry L. Englebright (Rep.), Nevada City ..... Second District

C. F. Curry (Rep., Dem.), 2326 Third Avenue, Sacramento ..... Third District

Florence P. Kahn (Rep.), 2712 Webster Street, San Francisco ..... Fourth District

Richard J. Welch (Rep., Dem.), 978 Guerrero Street, San Francisco ..... Fifth District

Albert E. Carter (Rep.), 552 Montclair Street, Oakland ..... Sixth District

Henry E. Barbour (Rep., Dem.), 936 T Street, Fresno ..... Seventh District

Arthur Monroe Free (Rep.), 66 South Fourteenth Street, San Jose ..... Eighth District

W. E. Evans (Rep.), 625 Cumberland Road, Glendale ..... Ninth District

Joe Crail (Rep., Dem., Proh.), 634 South Saint Andrews Place, Los Angeles ..... Tenth District

Phil D. Swing (Rep., Dem.), 840 Main Street, El Centro ..... Eleventh District

TWENTY-FIVE YEARS AGO †

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume II, No. 5, May, 1904

From some editorial notes:

. . . *Notice of Removal.*—The publication office of the state society is now established in Room 1, Y. M. C. A. Building, corner Ellis and Mason streets, San Francisco. . . .

. . . *Druggist Ethics.*—Under this caption the *Journal of the American Medical Association,* in a recent issue, complains bitterly of the demoralized condition of the drug store today. It is too true that the average drug store looks like a department store gone astray, or the wagon of some itinerant.

Commercialism has invaded entirely too much the proper domain of drug dispensaries, and it seems time for concerted action on the part of the medical profession to bring about the necessary reform. . . .

. . . But why shirk the blame and lay it all on the pharmacist? Who is it that can no longer write a prescription for his patient without "specifying" somebody's preparation, or somebody's mixture? The evil has grown from small things to large, but the pharmacist is not the only one who has nursed it along. The medical profession is quite as much responsible for the degeneracy in pharmacy of the day as is the druggist. It is the doctor who has been for years forcing the pharmacist from his profession into "commercialism," until now at least 75 per cent of the medicine used is ready-to-take mixed stuff which the manufacturer recommends for some line of ills, and the physician knows nothing about. Did the pharmacist commence the delightful game by asking the doctor to "specify" some particular make of chemical, because only one house could make it pure? . . .

. . . *The House of Delegates.*—A second year's work has demonstrated the wisdom of placing all the business of the state society in the House of Delegates and thus relieving the general sessions of everything except scientific work. Never has there been a more harmonious meeting of the society, and though a great deal of business was transacted, it was done without wrangling and expeditiously. . . .

From an article on "What Should Be the Physician's Position in the Body Politic?" President's Address. By H. Bert Ellis, M. D., Los Angeles:

. . . The logical relation of medicine to sociology has very naturally created some peculiar types of fame for physicians. Oliver Wolcott, a signer of the Declaration of Independence, who led in the foundation of medical societies and journals, is better known as a financier. Benjamin Rush, an alienist, clinician, hygienist and hospital reformer, incurred more enmity by his political conduct than he won fame by his medical science and patriotism. . . .

. . . The quaintest instances of extra medical fame of physicians are found in Guillotin and Gatling, the inventors, respectively, of the guillotine and the Gatling gun. . . .

. . . It is difficult to say whether Souberbeille owes fame to being a regicide or to his genito-urinary surgery in the domain of bladder calculi. . . .

. . . It is an open question whether the fame of Erasmus Darwin, the grandfather of Charles, rests more upon his medical treatise, Zoönomia, once so great a favorite in the United States, or upon his poetry, still extensively quoted. Keats, who was better known as a poet than a physician, unlike Darwin, never actively engaged in practice. . . .

. . . Every doctor should have some hobby or recreative employment or study, outside of the more lucrative side of his profession. Every practitioner of medicine should do more or less politics, and I use politics in its broad sense, that is, to augment the strength and resources of the nation or state and to protect its citizens in their rights and to preserve and improve their laws. In this sense the physician may do much politics without being in any sense a party politician, for there is a positive and vital relationship between medicine and the scientific principles underlying social conditions and phenomena. Whenever medicine has touched politics, politics has been bettered, but whenever corrupt politics has touched medicine, medicine has been smirched. . . .

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* Mail intended to reach any of these officials when Congress is in session as at present, could be addressed after the following style: Hon. Hiram W. Johnson, U. S. Senator from California, The Capitol, Washington, D. C.

† This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

From the Address in Medicine at the Thirty-Fourth Annual Meeting of the State Society, 1904. By R. F. Rooney, M. D., Auburn:

. . . I will give you none of these, but will go back and pluck the sword of preventive medicine from the dead hand of the Israelite, Moses, the great lawgiver and physician of ancient days. . . .

. . . How ennobling is the thought that the physician alone, among all professional men, labors night and day to lessen his own gains. At the expense of his own often too meagerly filled pocket, he is constantly reminding and teaching the layman how to prevent the ailments of himself and his little ones. The physician is the first to fly to the rescue when an epidemic threatens. He stirs and awakens the apathetic public, and forces it to spend its hoarded dollars for prevention instead of cure.

Since the days of Hippocrates, despite the crudities of medicine then taught, practiced and believed in, the higher duties owed to his profession have been recognized by the medical man. Bacon has said: "I hold every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereto." Some few, from greed of worldly gain, may not live up to this standard, but I believe the number to be exceedingly small. The physician, above all other professional men, lives up to the highest ideals, and I believe the country practitioner leads in unselfish effort. . . .

From an article on "Killian's Radical Operation for Chronic Frontal Sinusitis, with Demonstration of Case." By A. Barkan, M. D., San Francisco.

. . . During my recent visit in Germany I spent some weeks in Freiburg at Professor Killian's Clinic, where I witnessed Killian's direct method of bronchoscopy carried out by introduction of long tubes through the natural breathing channels into bronchi of the second and third order. The instruments which I brought for the use of the Cooper Medical College are open to inspection and may be utilized by anyone of this society.

Before proceeding with the history of this case, permit me to give a short résumé of Professor Killian's method of radical operation for chronic frontal sinusitis. . . .

From the Minutes of the Thirty-Fourth Annual Meeting of the Medical Society of the State of California, Hotel El Paso De Robles, Paso Robles, April 19, 20, 21, 1904:

. . . Dr. H. S. Orme, Los Angeles, chairman, reported for the Committee on Medical Education and Legislation. . . .

. . . Doctor Thorne, in closing the discussion, said that the keynote was struck by Doctor Tait when he said the stream could not be purged at its mouth, but only at its source, and our law permits us to go to the source and consider the education of the candidate, and his qualifications. . . .

. . . Dr. Wallace I. Terry's subject was "Cases of Acute Suppurative Appendicitis, Treated by the Ochsner Plan."

Patients should be operated on between attacks, or after an acute attack with rupture has quieted down, and pus is walled off. Absolute rest of abdomen should be secured, and no liquid be given by the mouth. A small sip of water may develop dangerous peristalsis. . . .

From reports of county medical societies:

San Francisco County.—Doctor Cooper, discussing paper read by Doctor Gregory: "I have been asked by two different clinics to look around for a static machine, and I have not found one which I would recommend them to use instead of the Queen coil. With regard to the photographs, I have been fortunate in them. I have one which shows a stone in the kidney. These were not taken instantaneously, but with 32-plate static machine. I find it does not matter much what machine is used; it depends upon the technique and the tube you get. If you get a good tube, that tube should be kept for the kind of work it is being used for. . . .

Obituary.—Dr. Charlotte Blake Brown, the pioneer woman physician of California, died in San Francisco on April 19, at the age of 57. . . .

. . . She leaves a husband, Henry Adams Brown; three children, Dr. Adelaide Brown and Dr. Philip King Brown of this city, and Mrs. Harriet Darling of Brookline, Massachusetts.

From an article on "Some Recent Advances and Investigations in Rhinology and Otology." By Louis C. Deane, M. D., San Francisco:

. . . To Dr. Otto Freer of Chicago, who, with his twenty-four personally devised instruments, dissects membranous flaps and resects large pieces of cartilage to correct septal deviations, we must pay our respects for his mature and possibly advanced technique. We may refrain from practicing his methods, fearing our own ability to work from one to two hours upon a deflected septum; not to speak of the courage and fortitude required by the patient. Still, the question as to the best method to employ for the correction of a deflected septum is a much discussed one. I have read with care the elaboration of a number of these methods. I have tried several, but have invariably fallen back upon the rough and ready Asch operation as applicable to the greatest number of cases. . . .

. . . Hay fever is of such rare occurrence on the Pacific Coast that it is unlikely that any of us will have much opportunity to use Professor Dunbar's antitoxin. It is in line with the rapid strides which are being made in serum therapy, and when such authorities as Sir Felix Semon, Emile Mayer, and McBride report favorably upon its action it is to be hoped that, in the coming year, we may be able to speak of it as a reliable remedy, a relief for the distressing symptoms accompanying hay fever. . . .

. . . To bar from serious consideration the treatment of chronic nonsuppurative middle ear diseases by hot air, injected into the external auditory canal, would be to overlook one more method for the application of heat to the inflamed surfaces. Aside from the marvelous effect of dionin (ethylmorphin hydrochlorate) upon the lymphagogues of the eye, heat is the best lymphagogue we have, and one cannot but appreciate the logic of such an application. . . .

DEPARTMENT OF PUBLIC HEALTH

By W. M. Dickie, *Director*

County Health Officers of California.—Following are the names and addresses of all county health officers of California as of record, March 15, 1929:

Alameda—Dr. John A. Azavedo, Hayward.
Alpine—Dr. F. H. Harrison, Markleeville.
Amador—Dr. G. L. Lynch, Amador City.
Butte—Dr. W. S. Lang, Gridley.
*Calaveras—Dr. George B. Cooper, Angels Camp.
*Colusa—Dr. G. W. Desrosier, Colusa.
Contra Costa—Dr. I. O. Church, Martinez.
Del Norte—Dr. Francis M. Stump, Crescent City.
*El Dorado—Dr. A. A. McKinnon, Placerville.
*Fresno—Dr. G. L. Long, Fresno.
*Glenn—Dr. Etta S. Lund, Willows.
*Humboldt—Dr. Lawrence A. Wing, Eureka.

*Members of the California Medical Association. (Editors' note.)

*Imperial—Dr. C. S. Brooks, El Centro.
Inyo—Dr. Harvey W. Crook, Bib Pine.
*Kern—Dr. Joe Smith, Bakersfield.
*Kings—Dr. A. S. Torrens, Hanford.
Lake—Dr. Henry P. Weiper, Upper Lake.
*Lassen—Dr. Dan Coll, Susanville.
*Los Angeles—Dr. J. L. Pomeroy, Los Angeles.
Madera—Dr. H. B. Neagle, Madera.
*Marin—Dr. J. H. Kuser, San Rafael.
Mariposa—Dr. A. M. Gregory, Mariposa.
*Mendocino—Dr. S. L. Rea, Ukiah.
*Merced—Dr. William C. Cotton, Atwater.
Modoc—Dr. A. Gibson, Alturas.
Mono—None.
*Monterey—Dr. Wiley A. Reeves, Salinas.
*Napa—Dr. Lawrence Welti, Napa.
*Nevada—Dr. Carl P. Jones, Grass Valley.
*Orange—Dr. K. H. Sutherland, Santa Ana.
Placer—Dr. Theodore Snypp, Auburn.
*Plumas—Dr. B. J. Laswell, Quincy.
*Riverside—Dr. W. B. Wells, Riverside.
*Sacramento—Dr. J. T. Christian, Galt.
*San Benito—Dr. L. C. Hull, Hollister.
*San Bernardino—Dr. S. B. Richards, San Bernardino.
*San Diego—Dr. A. M. Lesem, San Diego.
*San Francisco—Dr. W. C. Hassler, San Francisco.
*San Joaquin—Dr. J. J. Sippy, Stockton.
*San Luis Obispo—Dr. A. F. Gillihan, San Luis Obispo.
*San Mateo—Dr. F. Holmes Smith, San Bruno.
Santa Barbara—Dr. R. C. Main, Santa Barbara.
*Santa Cruz—Dr. S. H. Randall, Santa Cruz.
*Santa Clara—Dr. C. M. Burchfiel, San Jose.
*Shasta—Dr. B. F. Saylor, Redding.
Sierra—Dr. C. A. Eckhardt, Downieville.
*Siskiyou—Dr. Charles Pius, Yreka.
Solano—Dr. W. C. Jenney, Vacaville.
*Sonoma—Dr. S. S. Bogle, Santa Rosa.
*Stanislaus—Dr. F. R. DeLappe, Modesto.
Sutter—Dr. S. A. Coyette, Yuba City.
*Tehama—Dr. E. E. Thompson, Red Bluff.
*Trinity—Dr. W. B. Fields, Weaverville.
*Tulare—Dr. A. W. Preston, Visalia.
*Tuolumne—Dr. William L. Hood, Sonora.
Ventura—Dr. J. A. King, Ojai.
*Yolo—Dr. Fred R. Fairchild, Woodland.
Yuba—Dr. J. H. Barr, Marysville.

Communicable Disease Reports for March, 1929:

Chickenpox	2676
Diphtheria	223
Encephalitis (epidemic)	8
Measles	236
Meningitis (epidemic)	91
Poliomyelitis	13
Scarlet fever	2126
Smallpox	310
Typhoid fever	49
Whooping-cough	966

Epidemic meningitis is still high and epidemic poliomyelitis will bear watching. The reduced prevalence of diphtheria (half that of similar period in 1928) indicates value in continuing immunization. Chickenpox, mumps, and scarlet fever continue at high levels.

Many Chico Children Are Vaccinated.—In February the Chico Health Center carried on an active campaign to secure the vaccination against smallpox of Chico children. The presence of an unusually large number of cases of smallpox in the community made the campaign a matter of necessity. A total of 1140 children were vaccinated, of which number about 1000 were children in attendance upon the public schools.—*Weekly Bulletin,* March 16.

Trinity County Health Officer Reaps Results in Christmas Gift Vaccinations.—Dr. David B. Fields lives at Weaverville, Trinity County, where he has been county health officer for many years. In 1925 the doctor vaccinated all children in Weaverville and vicinity without charge, making the service a Christmas present to the children of the community. Smallpox has appeared recently in Weaverville, but not one of the recipients of the doctor's Christmas present in 1925 contracted smallpox, although many were exposed to the disease. Doctor Fields is now vaccinating school children, and children of preschool age, including babies, free of cost. Thus the spirit of Christmas persists in Trinity County. What gift to a child could be more worth while or of greater lasting value than this provision of protection against a disastrous disease? Doctor Fields vaccinated 463 persons during the recent outbreak of smallpox in Weaverville.—*Weekly Bulletin,* March 23.

*Members of the California Medical Association. (Editors' Note.)

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. Pinkham, M. D.
Secretary of the Board

News Items, Doctors of Medicine, May 1929

Dr. Charles B. Pinkham, secretary of the California Board of Medical Examiners, has been named president-elect of the Federation of Medical Examining Boards, a national society, it was announced today.—Sacramento press dispatch printed in the *Alameda Times-Star,* March 11, 1929.

The judgment of the Superior Court restoring his license to Clayton Wheeler, San Francisco gland specialist, after the State Board of Medical Examiners revoked it, was upheld by the State District Court of Appeal yesterday, when it dismissed an appeal from the lower court's action filed by the medical board (*San Francisco Chronicle,* April 16, 1929). (Previous entry, December 1928.)

General News Items

Dr. Arthur O. Berg, chiropractor, today awaits his second trial on a murder charge in the county jail, following his sudden change of mind yesterday, when he withdrew his plea of guilty to the lesser charge of manslaughter before Superior Judge Hartley Shaw. Berg recently returned here from San Quentin for a new trial after the Appellate Court reversed the conviction, pleaded guilty to manslaughter and asked for probation. Yesterday, however, he declared he wished to dismiss Attorney John Jorgeson, who won the appeal, substitute Attorney Bert L. Irving and stand trial. Berg was convicted of second degree murder in connection with the death through an asserted illegal operation of Miss Page Walden, University co-ed. He spent eight months in San Quentin (*Hollywood News,* March 29, 1929). (Previous entries July and September, 1928.)

The State Board of Chiropractic Examiners has no authority to investigate chiropractic colleges, under an Appellate Court decision on file today. The court upheld the San Francisco Superior Court, which gave Dr. Percy Purviance, Berkeley, an injunction to prevent the state board from demanding his books and looking into his course of study. Dental and medical boards have such powers.—*San Francisco Call,* March 28, 1929.

Pleading guilty to practicing medicine without a license, Anna Bouk appeared before Judge Georgia Bullock and was given a sixty-day sentence, suspended for two years. Miss Bouk, who has maintained offices in the San Fernando Building, claimed

to have received a certificate from a "Spiritualistic Association" in Washington.—*Los Angeles Examiner,* April 9, 1929.

In an attempt to rid the profession of fakers who use their offices as a blind for immoral resorts, Inspector Humason of the State Chiropractic Board yesterday ordered the arrest of eight persons.—*Los Angeles Illustrated Daily News,* April 5, 1929.

Deputy sheriffs and police are looking for two self-styled optometrists who are asserted to have fleeced a local resident out of $150 by means of the old "cataract game." The pair are also said to have defrauded a San Dimas man of $250 by similar operations. According to local deputies, the two "doctors," one of whom described himself as Dr. E. M. Wallace of St. Louis, appeared at the home of W. C. Wendt and told the latter that his Pasadena optometrist had asked them to examine his eyes. The usual "dangerous growth" was found and removed, and Wendt gave them a check for $150, which was cashed a few minutes later at a local bank. Wallace was described as between 25 and 30 years of age and about 5 feet 6 inches tall. His assistant was about the same age and slightly taller. They drove a large sedan.—*Los Angeles Times,* March 4, 1929.

Robert Fowler, arrested February 9 on a charge of violating the State Medical Practice Act, is free today. Inspector J. W. Davidson of the State Medical Board was the complaining witness against Fowler, and considerable heat was inserted into trial proceedings when Defense Attorney Leo Sullivan accused Davidson of "framing evidence" to get Fowler. Davidson denied the charge, claiming that Fowler had prescribed treatment for one of his operators for an internal ailment. He was freed by Police Judge Allan Norris (*Oakland Tribune,* March 22, 1929). (Previous entries, R. Thompson Fowler, "News Items," May, June, August, 1926; April, 1929.)

Dr. George D. Gillespie, chiropractor, must submit to a hearing before the State Board of Chiropractic Examiners on a complaint alleging use of intoxicants. So ruled Judge George H. Cabaniss in effect yesterday, when he upheld a demurrer filed by the board against Gillespie's petition for an injunction. The injunction was asked by the chiropractor on the grounds that a hearing might result in the revocation of his license and destroy his large practice.—*San Francisco Examiner,* March 19, 1929.

State officials took sudden steps yesterday to stamp out a so-called "cancer cure" business conducted in San Jose since 1875, when they arrested William F. Hoque, fifty-seven, in his offices in the Alliance Building, Third and Santa Clara streets. . . . State officials claim to have evidence that instead of being in the business of relieving the suffering of mankind, Hoque was profiting off uninformed patients who had suffered incurable damage and suffering by his "cures." Hoque's son William, they declared, is serving a six months' term in the county jail of Modesto, following his arrest there last December on charges now faced here by his father. . . . Literature relating to his methods, found in his offices, revealed a strange mixture of trivial or inaccurate information regarding cancer, according to medical men. "What is cancer?" is the heading of one leaflet, which ends with the promise of "Blood and Skin Remedies for the Cure of Cancer." Extracts from this leaflet are as follows: "The word 'cancer' is a Latin word meaning crab, which is a well-known sea animal, whose claws spread out in every direction, suggesting the fact that the disease known by that name spreads throughout the entire system. . . . Our combination treatment has removed hundreds of cancers from the lists of deadly diseases and placed it among the curable."—*San Jose Mercury-Herald,* March 28, 1929.

Dr. Manuel Machado was held to answer in the Superior Court yesterday afternoon, following a preliminary hearing before Justice of the Peace L. J. Morris. His bail was set at $500 cash or $1000 bond. Doctor Machado, who is a graduate chiropractor, was brought to trial on a complaint sworn out by Inspector William Byrne of the State Board of Medical Examiners, who charged him with practicing medicine without a license. The charges are similar to those brought against him last October by Inspector Byrne. Doctor Machado was convicted at that time and paid a fine. In the present case the prosecution attempted to prove that Doctor Machado altered the directions for a prescription for tincture of digitalis which was given to A. Maderas of this city by Dr. Bard S. Berry. Maderas died on February 17 (*Santa Maria Times,* March 1, 1929). (Previous entry, December 1928.)

William McBride, registered optometrist and alleged "fake" optical specialist, was given a six months' sentence in the county jail today, when he appeared before Judge A. C. Finney of the Criminal Division, Imperial County Superior Court. McBride was convicted of having accepted a fee from a Westmoreland resident for the alleged removal of an eye cataract. McBride is said to be a member of a gang of fake medical practitioners known as "Cataract Charlies." It is said he is wanted in Oregon for an offense similar to the one committed in this district and that he is under a sentence of from two to twenty years in that state. He is supposed to have obtained his release there under parole. This parole, it is said, has been recently revoked (*Imperial Valley Press,* March 15, 1929). (Previous entry, April 1929).

Held in the Alameda city jail yesterday on a charge of practicing medicine without a license, "Dr." E. T. Webb, who gave his home address as 1324 Gates Place, Pasadena, will be arraigned before Police Judge E. J. Silver of Alameda today. Bail was fixed at $500. Webb was arrested Sunday night at his hotel, Fifteenth and Harrison streets, Oakland, by Inspector J. W. Davidson of the State Medical Board, who swore to the complaint. According to Inspector Davidson, among the circumstances which led to the arrest was the death of Mrs. J. B. Whittemore, 1428 Lafayette Street, Alameda, on February 13, one day after "Dr." Webb had called at her home to treat her. Davidson was unsuccessful in obtaining a manslaughter warrant. Although the herbs and other remedies which were prescribed for Mrs. Whittemore's treatment were harmless, the fact that Webb attended her kept the case from a licensed physician who might have saved her life, according to Davidson. Webb is said to have admitted having no medical education and practicing without a license, saying he was a seller of patent medicines. . . . Records show that he was arrested for a similar offense in Los Angeles four years ago and in Chicago twenty-five years ago (*San Francisco Chronicle,* March 12, 1929). In connection with this case our Special Agent Davidson reported that on March 29 Judge Norris of Centerville, sitting in the Alameda court, held that there was not sufficient evidence to hold Webb for trial in the Superior Court although his attention was called to the decision in the case of People vs. Poo On, 49 Cal. App. 219, wherein it was held that where a person delivers medicine of their own selection at the request of a patient, such action constitutes a violation of Section 17. Under date of March 25, 1929, Special Agent Carter reported that when Webb pleaded guilty in Los Angeles of violation of the Medical Practice Act he was sentenced to pay a fine of $100, and Webb's attorney, knowing that another case of violation would be filed against him asked the court to make the fine $200, "and the judge almost fell off the bench when the defendant voluntarily asked him to double the fine. . . . When Webb appeared in court, papers were served on him in a civil suit."

CALIFORNIA
AND
WESTERN MEDICINE

VOLUME XXX JUNE, 1929 No. 6

TRENDS IN MEDICAL AVIATION *

By REAR ADMIRAL E. R. STITT
Medical Corps, United States Navy
San Diego

IN attending the meetings of the Council on Medical Education I have often been impressed by the grasp of our problems, shown by the presidents of our leading universities; it has been their duty to pass on the activities of the medical departments of their institutions. In the same way, during the past eight years, I have been actively engaged in developing naval medical aviation, not as a specialist—a flight surgeon—but as one responsible to the medical department of the Navy for the providing of adequately trained personnel, and the adoption of methods in medical aviation which would be accepted by those concerned with the more vital military problems of training combat fliers and providing efficient aviation material.

During the World War I served as a member of the medical division of the National Research Council and, in the conferences of that group, I gained the impression that, from a medical standpoint, the fitness of a man to fly was to be determined by either the psychologist or the otolaryngologist. At that time some of our ear specialists thought that the ability of a man to conquer the realm of the air rested in perfect functioning of the internal ear, and emphasized the results obtained from the turning-chair and other tests to determine normal equilibrium. The personality or temperamental studies of the candidates were considered by the psychologists as more important, and I must admit that, today, it does seem as if the information obtained from the psychological (neuropsychiatric) examination is of predominating importance.

Of course we must not lose sight of the valuable studies that were being made during the war by a group of eminent ophthalmologists in connection with the requirements of stereoscopic vision and eye muscle coördination in the selection of a pilot.

At times, during the past eight years, it has seemed to me that our flight surgeons were inclined to accept eye muscle balance as the outstanding qualification in the pilot candidate. In particular, the question of permissible defect in the way of hyperphoria has come to the fore and, in establishing a standard for waiver, we have had the constant opinion of that leader in American ophthalmology, General Wilmer. At first we would not accept a candidate with more than 0.5 diopter of hyperphoria, but on the advice of Doctor Wilmer we waive this defect when not exceeding 0.75 diopter. In 2404 examinations at Pensacola, 54 (2.2 per cent) were thus disqualified. A difficulty seems to be that hyperphoria varies, so that an accepted candidate may later on show more than one diopter of this muscle balance defect. In a study of fatal accidents slight degrees of hyperphoria do not seem to have had any bearing.

The specialists at Pensacola have failed to note any superiority in student pilots who just pass the various eye tests with those who have little or no defect. This would tend to show that, so far, we have not erred in dangerous lowering of standards. The English flight surgeons do not stress eye muscle balance, as do the specialists in our Army and Navy.

FLIGHT SURGEON

I had always thought that the title "Flight Surgeon" was of English origin until, some time ago, I heard an amusing story by one of Doctor Wilmer's associates, who was sent over to England during the war to serve with the British forces. Upon arrival in England a survey was conducted as to those reporting practice in the specialties. This officer reported himself as a flight surgeon and great was the mystification of the authorities as to placing him. Finally it was decided that it must apply to a surgeon who could fly, and he was turned over to the aviation branch to demonstrate his piloting ability. Fortunately he had learned to fly when engaged in his medical aviation duties and passed the flying test, and was sent back with the stamp of approval as a flyer. He did not tell us whether he was then put through tests to determine his qualifications as a surgeon.

Investigating the origin of the designation "Flight Surgeon" it would appear that the first official use of the title was in a memorandum to the Chief Signal Officer, United States Army, dated April 12, 1918, in which occurs the following paragraph:

"In the case of section "Care of the Flier" we have gone over every possible designation and come to the conclusion that that is the only one that would give in a brief phrase any idea of what the activities of the section are. The personnel under this section will be charged with the question of the physical and temperamental fitness of all fliers, whether in training or later in actual service at the front. The researches of our own people who have been looking into this question, as well as the experience of our allies, have made it very evident that the flier must be carefully watched to see that he is fit whenever he makes a flight. This question cannot be left to the individual aviator, nor to his immediate superiors. It is a question of psychologic and physiologic fitness which can only be determined by specially

* Read before the California Medical Association in General Meeting at the Fifty-Eighth Annual Session, May 6 to 9, 1929.

trained men who constitute the personnel of this section. These are to be designated Flight Surgeons."

During the latter part of 1920, and the first months of 1921, I was so occupied in making arrangements for the training of our medical officers in nonmilitary specialties that I was unable to take steps to provide our service with specialists in medical aviation, but as soon as the Naval Bureau of Aeronautics was provided for by the Congress, I took up with Admiral Moffett and his assistant, Captain Murfin, the matter of training medical officers as flight surgeons. Captain Mustin was one of the outstanding pilots of the Navy and a man of exceptional executive ability. As a practical flier he felt that it was necessary for a flight surgeon to be first a pilot, in order that he might understand the physical and emotional strains experienced by a man in flying; otherwise he could not gain the confidence of combat pilots. For this training, a period of almost a year was required, and although I felt that a period of flight training of about two months would suffice, yet I thought it advisable to yield to the views of the practical aviator. I may state that later on, and just before he had to leave the Bureau of Aeronautics on account of the illness, which resulted fatally, he agreed that a period of about three months would suffice to give the medical officer the necessary experience in handling different types of planes, and to understand the stress and strain to which the man in the air is subjected.

The pioneer group of naval flight surgeons entered the class at Pensacola and followed the same course as outlined for line pilots. Such a course could not but be of help to the flight surgeon, although it is a question as to his ever using his training in navigation, radio, or motor mechanics.

In a splendid spirit of coöperation General Ireland, the Surgeon-General of the Army, invited us to send our men to join the classes of Army medical officers, undergoing instruction at the school of medical aviation at Mineola.

Following this course we required the prospective flight surgeon to serve the probationary period of three months with an active air unit and, if the commanding officer reported the medical officer as having gained the confidence of his pilot associates and secured recognition of the value of his services, then flight surgeon orders would be issued by the Bureau of Navigation. At the present time, when the importance of medical aviation is so well recognized by the line officer, it is hard to appreciate the difficulties met with by the Medical Corps to secure recognition of flight surgeons. It was necessary to overcome the view that any medical officer could care for the pilot and conduct the physical examinations of candidates. We selected our brightest young men for aviation duty, and always with an eye to tact, because it is essential that a flight surgeon be held in the same regard by his pilot associates, as was the old family physician by his patients.

Following the careers of our first specialists in aviation medicine, I have observed that the most successful ones have been those who had something of the spirit of the old country doctor—always ready to help anyone, at any hour, day or night.

In the *Air Service Medical,* issued by the War Department in 1919, it was thought that, in addition to the flight surgeon, there was needed for the care of the pilot a physical director, whose duties would be similar to those of a gymnasium director; and a nutrition officer to care for the diet of the fliers. You will remember the importance attaching to physical training during the war, and this influence suggested the physical director. As regards the nutritional adviser, I rather suspect a French source, as even today the French flight surgeons attach great importance to efficient alimentary tract functioning in the fitness of the flier.

We recognize the importance of the care of the diet and athletic training, but think the flight surgeon should himself supervise these important aids to flying efficiency, thus combining three specialties in one. In our development of specialists for the medical service of the Navy we have devoted much thought to the problem of combination of specialties on account of our many hospitals and our limited personnel. From the first, we have been combining ophthalmology and otolaryngology; and we have considered the flight surgeons, on account of the special attention they have to give to eye and ear conditions, as giving us a reservoir for such specialists. Today some of our best eye and ear specialists were former flight surgeons.

TESTS TO DETERMINE PHYSICAL EFFICIENCY

In our Army and Navy great value is attached to the Schneider index, as indicating cardiovascular efficiency. This is an index which has a maximum figure of eighteen, and is made up of six factors: (1) Pulse rate reclining. (2) Pulse rate standing. (3) The difference between these rates. (4) Effect of exercise on these rates. (5) Time of return to standing rate, following exercise; and (6) Difference between reclining and standing systolic blood pressure. The fact that this test apparently gives an exact numerical result appeals to our line officers, and many of our leading flight commanders express the utmost confidence in this test, and have directed that the flight surgeons of their commands make such a test of a flier when there has been a question as to his physical condition. This fact, as well as the great experience obtained by American flight surgeons with this test, makes it one of great importance. It does take a great deal of time, however, to complete the test, and we are all familiar with the inadequacies of the numerous cardiac functioning tests, which have been advanced, and praised, and discarded during the past thirty years.

In the British air service they attach great importance to a test in which the candidate, without rebreathing, maintains a column of mercury at 40 millimeters by blowing through a rubber tube. The time this test can be sustained and the effect on the pulse rate, during a succession of

five-second intervals, gives valuable information as to the cardiorespiratory efficiency.

We used this test in our annual physical examinations of about five hundred naval officers on duty in Washington, but found it necessary to reduce the requirement to 20 millimeters for older officers, as many of them began to show rather marked cyanosis before they would give up. The 40 millimeter standard is one for young men between eighteen and thirty years of age.

Another test, much used by the British, is somewhat similar to that noted above—the length of time the candidate can hold his breath. Not only does this give evidence of cardiorespiratory fitness, but it shows grit—the fellow who holds on until he is, figuratively, black in the face, is the man who does not give up easily.

Our naval flight surgeons are now considering the addition of some type of breath-holding test to the other Schneider factors. The great advantage of the Schneider index is its standardization.

The British authorities attach great importance to a good sports record. According to Flack, a man who has been a good football player at his public school must have a good physique and courage, but, less apparent, is the requirement of character. The other boys will refuse to admit to their games one who is not square and a good sportsman. In the experience of the instructors at Pensacola there does not seem to have been a relation between aptitude for flying and an outstanding athletic record at the Naval Academy. One of the line instructors told me, however, that a good golf player had an advantage.

In the first part of this paper reference was made to the stressing of the Barany tests during the World War, but it is now recognized that vision and muscle sense must be considered in equilibrium as well as the internal ear. Blindfolded pilots, or those flying in the dark, do not seem to be able to recognize change of position, so that the present opinion is that vision is more important in equilibrium than the functioning of the semicircular canals, or muscle sense.

Although we use the Barany chair to determine equilibrium, through nystagmus and falling tests, the British do not consider such tests necessary. There are so many disagreeable reactions following the caloric douche test that the flight surgeons hesitate to use it. During his inspection of medical aviation activities in European countries, Commander Davis, Medical Corps United States Navy, the head of the Division of Medical Aviation in the Bureau of Medicine and Surgery, was interested in a "retarded balance" test, used by the French flight surgeons. The test was performed with the candidate standing, eyes closed, and hands behind his back. Three complete turns were made on the vertical axis, the candidate then assuming a sensitized Romberg position (right foot in front of left if turns made to the right, and left foot in front of right with left turns). A normal individual regains equilibrium in ten to fifteen seconds, and if the candidate does not regain his balance in thirty seconds it is cause for rejection.

This test is so simple and brief that it appealed to me. In my talks with our flight surgeons I have always advised them to simplify and shorten the period of examination whenever possible. The British have a balancing rod test, which we have been experimenting with. There is a thin board, about 4 by 12 inches, which has a slender rod, with a rather unstable base, placed near one end. The candidate has to pick up this board from a table, extend the arm, and then replace the board on the table without upsetting the rod. There is an old idea that a drink of whisky "steadies the nerves," but I understand that the experience of the British flight surgeons is that the pilot who has taken a drink or two upsets the little rod and is thereby grounded.

During the war an apparatus known as the Ruggles orientator was devised, and it was thought that this would, in a practical way, test the candidate as to his equilibrium and other qualifications important to the pilot. The orientator reproduced the movements of the plane in the air in a similar but more sudden and upsetting way. The orientator was a sort of a cockpit of a plane swung within three concentric rings provided with controls within the cage, and a set of controls outside for use of the examining instructor. The candidate, strapped in the machine, can be turned upside down, or in any other position, through the operation of motors controlled by the examiner. When the candidate uses opposite controls, he returns to normal (neutral) position. The main objection to the orientator was that it seemed impossible to provide it with a recording apparatus. About a year ago, however, this was accomplished by the physicists at the Naval Experimental Laboratory, and tests with this graph attachment have been conducted at Pensacola. Lieutenant Commander Poppen, Medical Corps United States Navy, the head of our medical aviation department at the Naval Medical School, has been analyzing these graphs, but his study of these first experiments is not promising. The factors which seemed worthy of consideration were: (1) Reaction time to single control. (2) The consistency of this time. (3) Coördination. (4) Performance time for single control; and (5) Ability to perform multiple tasks. There was little difference between successful and unsuccessful candidates. The best criterion would admit only 8 per cent of students who failed to solo, and 19 per cent of those who failed after having soloed, but would admit only 21 per cent of those qualifying and only 33 per cent of experienced pilots. Further study may prove certain elements of the test to be worth while. Originally it was supposed that by having a candidate start with the orientator the time of training could be shortened, but there does not seem to be foundation for this view. The European flight surgeons attach much importance to tests for reaction time, while in America these tests have not occupied an important place.

TEST TO DETERMINE REACTION TIME

It is very evident that one who cannot think and act without undue retardation is unfit to meet

the sudden emergencies which occur in aviation, and my interest in the recording attachments of the Ruggles orientator was aroused because I thought that this graph provision would give us an apparatus superior to the Reid control indicator which marks reaction time.

In the organization of the Bureau of Medicine and Surgery, medical aviation is one of the activities belonging to the planning division, and the head of this division, Captain Carpenter, Medical Corps, United States Navy, tried for two years to get one of these English machines, without success; and this failure made him particularly desirous of developing a rival in the orientator. In the Reid control the candidate is seated in a cockpit similar to that of an airplane, and operates the controls, which, when in neutral, stop the current to the graph attachment, and, when not in neutral, allow the currrent to pass. The time required to bring the controls in neutral is recorded, as is also overcontrolling. There are also added auditory disturbances, such as blowing a Klaxon horn behind the candidate. The British have great faith in this apparatus in the selection of pilot candidates.

The French have been very enthusiastic about reaction time tests, not only response to auditory, visual and tactile stimuli, but even recording reaction time to changes of position.

In his visit to Europe, our consulting flight surgeon, Doctor Davis, was impressed with the thoroughness of the Italian flight surgeons in conducting reaction time tests, as well as with those determining equilibrium, and it would seem advisable, unless we have a good method in the recording orientator, to investigate, actively, the problem of measuring reaction time.

About a year or so ago we began experimenting with a simple reaction time and coördination determining test, which we got from Doctor Rippon of the Royal Air Force—the dominoes test. After shuffling up the pieces, the candidate is required to match them, end to end in a long line, but placing the doubles at right angles to the continuing line. A stop watch is used to time the completion of the matching, and failure to match all pieces is checked as well as the time consumed. Our flight surgeons at Pensacola now consider that more important, even than reaction time and coördination ability, is the information to be obtained from the test as to temperamental qualities. The neurotic individual shows a rather characteristic jerky and self-conscious reaction, and Doctor Sutton, our neuropsychiatrist at Pensacola, is of the opinion that, with this test, one can obtain help in the recognition of the introvert, extrovert, and neurotic individual.

TESTS TO DETERMINE PSYCHOLOGICAL SUITABILITY

If this test can help us in placing a candidate psychologically, it is a worthwhile one, because this part of the examination is the one which, in our experience, has proven the most difficult. In grading candidates and accepted pilots, from the neuropsychiatric standpoint, there was the greatest objection to the use of the designations temperamental and psychological aptitude when an unfavorable opinion was recorded. The naval officers who took the examination felt that any such record would militate against their future service, so that now we make use of the designation aeronautical adaptability, which affects solely a man's fitness as a pilot. We do not resent being told we cannot sing or paint a picture, and the same is true of being told that we cannot fly.

Realizing that we had to bring the pilots to a recognition of the value of aviation medicine, I found that the questioning connected with psychoanalysis aroused antagonism on the part of many officers of the highest type, and I have had many conferences with our flight surgeons about the pros and cons of sexual trends.

The senior flight surgeon at our school of medical aviation, Doctor Poppen, now holds that the flight surgeon should place less confidence in the value of analytical Freudian concepts, and give more consideration to the integral psychology of McDougall, as being more applicable to normal personality. Poppen finds application for Adler's inferiority complex and its accompanying defense mechanism, and still uses Jung's word association test, considering, however, only the average time of response as of practical significance.

Last summer I decided to send Doctor Sutton, one of our ablest and most experienced psychiatrists, to Pensacola to work with the regular flight surgeons in the study of the problem of temperament. Already his help has been recognized by his associates, and his recommendations as to the methods of determining psychological reactions give great promise. One part of his examination is that designated "self-estimate." In this the candidate is questioned as to his self-reliance, sense of humor, irritability, vanity, courage, egotism, and many other characteristics. Lengthened reaction time in replying to these questions is noted by the examiner, and this part of the examination seems to give a more accurate estimate than any other part of the psychological questionnaire.

There are two very important questions to ask the candidate for aviation training, and these are: (1) Whether he would like to fly for the pleasure or sense of accomplishment it would give him (air-minded), rather than from the standpoint of the advantage of increase of pay; and (2) whether there is a marked objection to his flying on the part of his family. A weeping or nagging wife at breakfast may explain a retardation of reaction time when an emergency arises and a crash results a few hours later. From a research standpoint it would be instructive to have a large number of people examined and allow all to start training regardless of physical defects; but I am afraid such an experiment would not meet approval. In England there is an opportunity to study the relation of crashes to physical or psychological defects in the pilots, provision being made to have the pilot (provided he is not killed) sent to the central laboratory of medical aviation for a thorough examination by experts, but

Doctor Davis did not obtain their statistics as to this relation.

The medical aviation service of the Navy did not begin to function until the latter part of 1922, so that those officers who had taken up flying in the four years preceding were not examined physically, other than from the standpoint of an ordinary physical examination. A few months ago I asked Flight Surgeons Poppen and Davies to go over the records of 604 aviators, who were still flying in 1923, but who had been trained prior to the giving of the special type of medical examination. Of these qualified pilots 95.3 per cent showed no defects when examined in 1923 by flight surgeons, 2.8 per cent had recorded minor defects which were waived by the Bureau of Medicine and Surgery, but on the advice of the consulting flight surgeon. (Defects were never waived against the judgment of the consulting flight surgeon.) From the above it will be seen that only 1.9 per cent of these 604 pilots had defects which would disqualify, and it is reasonable to assume that some of these might have developed defects in the years subsequent to their becoming pilots. Unfortunately it was impossible to get information as to the physical qualifications of those who failed to become pilots, or who were subsequently killed in crashes, but the statistics above do show that the man who qualifies in military aviation seems to be the type of man who can pass the flight surgeon examination. With this in view I think we should hesitate to lower the physical standards required for the combat pilot, but it is possible that Major Bauer, and his associates in the Department of Commerce, may find it safe to lower the standards for ordinary commercial flying, although I gather from the statements of expert pilots that the training a combat pilot must receive makes for a safer commercial pilot.

TRAINING OF FLIGHT SURGEONS

With the removal of the Army School of Medical Aviation to Texas, it was found necessary to make other provision for training our flight surgeons. In training specialists for the naval medical service, our policy has been to utilize civilian facilities whenever possible; and with this in mind we approached Dean Meeker of the Postgraduate School of the University of Pennsylvania. A conference was held between Flight Surgeon Davis and myself, representing the Navy, and a number of professors, as well as Dean Meeker, representing the University. In view of the possibilities of commercial aviation these gentlemen recognized the probable need of instituting a course in medical aviation, but the many specialties involved in such a roster and the difficulties of evaluating their respective importance, made them feel that the time was not yet ripe. After outlining our views as to the training of a flight surgeon, the different professors attending the conference were asked to express their opinions. I was much interested in the impressions gained by Professor Weisenberg, who stated that it seemed to him that the important feature of such a course would be to eliminate members of the class who were temperamentally unfitted to be flight surgeons; the instructors would have to study the student rather than the student study the subject.

Following this conference, we decided to institute a course for flight surgeons at the Naval Medical School, Washington, D. C. Twice a year we have a class of from fifteen to twenty medical officers take a four or five months' refresher course at the school, and during the first two months the entire class is given intensive training in medical aviation physiology, ophthalmology, cardiology, otolaryngology, psychology, and neuropsychiatry. This qualifies any officer who successfully completes the course to conduct the routine examinations for pilots; but for the specialists in medical aviation this is only the starting point. From the class we select three or four officers who show aptitude for this specialty, and for the next two months we have a seminar course, in which the selected group concern themselves with special problems; and in this research training we are fortunate in having the assistance of the Bureau of Standards, St. Elizabeth's Hospital, and the Naval Experimental Station, Bellevue, as well as the opportunity to discuss these problems with the officers of the Bureau of Aeronautics.

Following this seminar course the prospective flight surgeon goes to Pensacola, where he has practical training with groups of aviation personnel for two months; and if he "makes good" he becomes a flight surgeon. The course of probationary training is a six months' one, but it is only after years of experience that one really becomes a flight surgeon. About a year ago we worked out methods for a brief training of medical reserve officers to familiarize them with aviation duties. The course was limited to two weeks, and was only open to ophthalmologists, or others who had had considerable training in eye work; it being recognized that only men who were familiar with eye muscle balance and other eye examinations were prepared to profit by such a short course.

The necessary books and a suggested course of reading were sent the prospective flight surgeon in advance, so that when he arrived at Great Lakes, Hampton Roads, Pensacola, or San Diego, he was acquainted with the necessary groundwork of aviation physiology, psychology, neuropsychiatry, and cardiology.

There is a great field for the flight surgeon in connection with the problems of health extension. (The studies of the actuaries rather throw doubt on the extension of life beyond the Biblical period.) The naval flight surgeon lives with the pilots of his unit, almost on terms of family intimacy. He knows what the pilot eats, and whether he drinks too much coffee or tea; whether the amount of sleep is sufficient, and is familiar with the pilot's exercise habits. In life extension (or "positive" health recommendations) we stress diet, exercise, and mental hygiene, but, frankly, we have very little positive knowledge. The in-

dividual constitution varies so greatly that what is good for one may be bad for another.

Almost the only constant health rule that we find in the lives of octogenarians and centenarians is moderation. The flight surgeon is in a position to evaluate health measures and, eventually, to make reliable recommendations.

The outstanding need in medical aviation is international joint action in research, and evaluation of the various tests in use by the different countries. Many of our flight surgeons have regretted the difficulties attending coöperation between the flight surgeons of our Army and Navy; there should be some provision for exchange of flight surgeons so that constructive criticism would be provided.

In our section of the Joint Munitions Board, General Ireland and myself were in perfect agreement that the utmost coöperation must obtain in the medical departments of the two services.

In my opinion, the visit of the consulting flight surgeon of our bureau to the medical aviation centers of Europe has been of inestimable value to naval medical aviation. More progress could probably be made in a few months than in a few years if, instead of working alone, there should be the most intimate association between the flight surgeons of our Army, Navy, and Department of Commerce, and these with a similar activity of other countries of the world.

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THE ENLARGED SPLEEN*

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The problem of the enlarged spleen frequently presents itself to the physician. In the majority of cases the signs and symptoms are confused and the clinical phenomena are not always closely related to the spleen. Physiologically the spleen is not important, but pathologically it is a menace to the patient, because splenic enlargement of itself increases a function which is not significant, to an overactivity which is not easily controlled through natural agencies.

The lymphoid tissues of the body, of which the spleen is a part, have been named by Aschoff and Landau the reticulo-endothelial system; they comprise a number of tissues with diverse functions not always related to each other. The cells of the sinuses of the spleen are closely related to the Kupffer cells of the capillaries and sinuses of the liver. These structures have in common the ability to develop lymphocytes, which form about 25 per cent of the total white blood cells, and, to a less and varying extent, the mononuclear leukocytes. The lymphocytes are produced in large numbers by the Malpighian tufts and it is probable that the production of lymphocytes is the chief function of these nodes. The lymphocyte, as pointed out by Carrel, has all the properties of growth and nutrition, which he demonstrated in the nurture under glass of fibroblastic tissue. The phagocytic action of the large mononuclear leukocytes is well marked, and these cells, with the aid of the reticulo-endothelial cells generally, remove from the blood stream and tissues subnormal red blood cells as well as microörganisms and foreign bodies—functions of the spleen which are maintained in the shadowy capillary area between the splenic arteries and veins.

The lymphoid tissues, again, are of interest because they become senescent to a greater or less extent. C. H. Mayo pointed out more than thirty years ago that the lymphatics, after the adolescent period, gradually become less active through the development of fibrous tissues, and that the reason cancer spreads less rapidly in the old than in the young is that the lymphatics of older persons are not sufficiently active to disseminate the disease quickly.

The appendix has a relatively large amount of lymphoid tissue, and undergoes normally the same type of senescence. The gradual disappearance of its lymphoid structure, with the accompanying contraction and obliteration of its lumen, has been wrongly named "appendicitis obliterans." Failure to relieve supposedly related symptoms by appendectomy has given rise to much argument with regard to the validity of chronic appendicitis.

It often happens that tonsils which are very large in youth, by middle age will have shrunk so as to be scarcely noticeable under the pillars of the fauces. The tonsils are lymphoid in structure, and perhaps one of their functions is to permit, early in disease, a few bacteria to enter the blood to stimulate resistance.

The spleen reaches the height of its activity in the adolescent period, and it is during this period that disease of the spleen is most frequntly manifest. By the age of forty, the functional capacity of the spleen has become greatly reduced, because of the introduction of fibrous tissue.

The pulp cells of the spleen are efficient phagocytes, and the phagocytic activity of the spleen as well as its strainer function in the removal of bacterial and protozoal and toxic material is aided greatly by the normal disappearance in the spleen of the outer and middle coats of the blood vessels, so that the blood comes in direct contact with the endothelial lining of the splenic capillaries and sinuses. In the dog, the spleen may contain about 20 per cent of the total blood volume, and in times of stress the blood may be forced into the circulation by the nonstriated muscle fibers of the spleen. Undoubtedly this is equally true of man, and perhaps accounts for the left-sided pain in the marathon runner. According to tradition, the ancient Greeks removed the spleen from their runners in preparation for the race.

The control of the action of the spleen apparently depends to a large extent on unidentified internal secretion, since the nerve supply to the capsule from the sympathetic system is scanty.

Our knowledge of the functions of the spleen has been deduced to a considerable extent from the clinical pathology. It has been shown that regardless of the nature of the enlargement of

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the spleen, the destructive effect on the blood becomes manifest in the form of chronic anemia.

The red blood cells are produced in the myeloblasts of the bone marrow. Mann and Magath have shown that destruction of the red cells, as far as the bile pigments are concerned, takes place largely in the bone marrow, and only to a small extent in the lymphoid tissues, and that the function of the liver is rather to filter out bile pigments than actively to destroy great numbers of red cells.

Ashby has shown that normal red blood cells may live seven weeks and probably longer. When the spleen is enlarged, its destructive function is enhanced, and it destroys red blood cells which, although they may not be normal, are still capable of functioning.

The red blood cells are the oxygen carriers, and contain one or more atoms of iron to each molecule of hemoglobin. When these cells are reduced, chronic anemia or suboxidation is a result. That the spleen may destroy a certain number of white blood cells as well as red blood cells is shown in the leukopenia of splenic anemia. In hemolytic icterus there is a specific destructive effect of the enlarged spleen on the red blood cells, which in this disease are abnormally fragile, and in hemorrhagic purpura there is specific destruction of the blood platelets, which have to do with the clotting of the blood.

One of the theories of the clotting of blood is that the blood contains a ferment called prothrombin, which tends to clot, and a second ferment, antithrombin, which prevents clotting. When there is injury to the tissues, the thromboplastin, formed from blood platelets, unites with the antithrombin, and permits the prothrombin with the calcium to form a clot. If thromboplastin is absent from the blood and tissues, due probably to increased resistance of platelets, hemophilia results; if the blood platelets are reduced, purpura results, and if the calcium is exhausted, as it sometimes is in long continued jaundice, the hemorrhagic conditions develop which sometimes accompany chronic jaundice.

The removal of the spleen in experimental animals and in cases frequently seen in man in which a normal spleen has sustained traumatic rupture, has shown that beyond the temporary effect of the operation the physical economy has not been impaired.

Grouping the disease conditions which have produced enlargement of the spleen makes apparent certain interesting data.

The four main dysfunctions of the enlarged spleen concern, first, the liver and bone marrow; second, the blood; third, the action of the spleen as a filter, and fourth, its relation to malignant disease of the spleen and other lymphoid tissues.

The liver bears a close relation to the spleen. The spleen has a large blood supply, but its veins join with the portal vein and supply about 20 per cent of the blood in the portal circulation. All the material, protozoa, bacteria, toxic substances, and the various elements that have been collected by the spleen in its capacity of a strainer eventually are carried to the liver.

The fact that the spleen is a strainer accounts for its enlargement in typhoid, tuberculosis, malaria and syphilis. In these diseases the spleen may become incapable of destroying material that it deletes from the blood. Therefore, when the material is sent on to the liver, it has not been efficiently prepared by the spleen. The material is toxic, and, although the liver is the great detoxicating organ of the body, sometimes, in late stages of the diseases mentioned, it is injured and the fibrosis (cirrhosis), which Banti described, is produced. The hepatic cells are all alike in function and therefore the morphology in a pathologic state is simple as compared with that of organs with several types of cells.

In neoplastic conditions the spleen may take part in the production of white cells of embryonic character, such as are seen in splenomyelogenous leukemia and in other diseases, for instance, Hodgkin's disease, according to some pathologists, and various types of lymphoma. It is of interest in this connection that these embryonic white cells that are produced so rapidly are destroyed readily by various agents, particularly x-ray and radium, to which all the lymphoid tissues have great sensitivity, although the disease may not be cured by this destruction. As Desjardins has pointed out, the sensitivity of the normal cells of a tissue to radium and x-ray is the index of the benefit that may be expected from the use of these agents in the cure or palliation of malignant disease of that tissue.

This short résumé of the clinical relationship of the enlarged spleen to general conditions enables broad evaluation of the results of splenectomy. I have classified 534 cases of splenectomy on the clinical rather than on the pathologic basis. I am indebted to my colleagues for important data. Dr. Giffin has worked out the clinical course of these cases as related to the condition of the blood and the diagnosis, with which he has dealt in various papers, and Dr. MacCarty has observed the pathologic condition of the spleens removed. An attempt has been made to correlate these data, but the pathologic condition is not always closely related to the clinical condition; this may well be expected, since the spleen is only one of a number of organs or tissues that are concerned.

DATA CONCERNING 534 CASES IN WHICH SPLENECTOMY WAS PERFORMED BETWEEN APRIL 1, 1904, AND APRIL 1, 1929 (TWENTY-FIVE YEARS)

Clinical Classifications	Cases	Hospital Mortality
Disease associated with abnormality of the red blood cells	207	11 / 11
Disease associated with abnormality of the white blood cells	55	3
Disease due to filtration of infectious and toxic agents	237	30
Splenic neoplasms	11	3
Miscellaneous	24	4
Total	534	51

Some of the patients who died following splenectomy recovered satisfactorily from the operation, but were not greatly benefited by it and remained

in the hospital until death occurred. For this reason the hospital mortality is given rather than the operative, which would be much less.

DISEASE ASSOCIATED WITH ABNORMALITY OF THE RED BLOOD CELLS

I shall take up the splenic syndromes associated with abnormality of the red blood cells in the order in which the results of splenectomy were the best. Of these, hemolytic icterus is first.

Hemolytic icterus.—This disease is characterized by enlargement of the spleen and the liver, by chronic jaundice, and by fragility of the red blood cells, which is rather in keeping with the idea that the spleen is an agent of destruction rather than the cause, as this fragility of the red blood cells continues after the spleen has been removed. In the uncomplicated case the ordinary signs of obstructive jaundice are not present; that is, the stool is of normal color, and bile is not present in the urine, but 68 per cent of these patients have gall stones, because of the enormous amount of bile pigment which has come from the destroyed red blood cells. These gall stones may result in irritations and infections and give rise to obstructive jaundice with the other symptoms of gall stones.

Hemolytic icterus exists in two forms, the first of which is the infantile or congenital type of Minkowski, which may be present from birth. Various members of the same family may be more or less affected by this dyscrasia. The second is the acquired type of Hayem and Widal, which is usually seen in the adolescent period. In this type the symptoms are more acute and lead to progressive anemia and death from intercurrent disease, usually by middle life or before.

The familial type of hemolytic icterus may vary from conditions in which the destructive effect is so marked as to necessitate early splenectomy, to those in which the symptoms are so slight that the disease may exist for years without causing serious injury.

The acquired type of hemolytic icterus is a more serious condition and usually requires splenectomy.

Hemolytic icterus is marked clinically by intermittent fever, or malaise, in which there is an increase of jaundice, and of tenderness about the spleen and the liver. Patients should not be operated on during acute manifestations, as the symptoms are due to acute toxemia which may result in death following operation. The mortality of splenectomy in the uncomplicated cases is low; in our series of 100 cases there were four deaths. Within four days after the operation the patient, perhaps for the first time in his life, is free of jaundice.

Hemorrhagic purpura.—In chronic hemorrhagic purpura also, splenectomy gives remarkable results. In this disease acute manifestations may sometimes develop, and the acute type should be carefully distinguished from the acute purpura of the late stages of aplastic anemia, leukemia, and dyscrasias of that type in which splenectomy does no good and gives a high immediate mortality.

In the typical case of hemorrhagic purpura the blood platelets, which ordinarily range from 250,000 to 400,000, are reduced to less than 100,000; at 80,000 mild purpura may appear, and at less than 30,000 purpura will be marked. When the blood platelets are reduced to 30,000 or less, as may happen in some acute types, the patients must be rehabilitated by transfusions and other measures before splenectomy is attempted.

In the chronic cases of hemorrhagic purpura, the purpura may be more or less intermittent. In the female, serious hemorrhages from the uterus at the menstrual time may be marked and prolonged. The spleen usually is readily palpable, but sometimes it is not large enough to be palpated.

Removal of the spleen in chronic hemorrhagic purpura acts like magic. The external wound which in the course of opening the abdomen may have required a large number of forceps on blood vessels, will often stop bleeding within a few minutes after the splenic pedicle has been tied. The spleen as a rule is not adherent and is readily removed. The mortality in our series of thirty-two cases was one.

Pernicious anemia.—In pernicious anemia the debilitated red blood cells, the best the patient can produce, may be removed by the lymphoid tissues, especially by the spleen. In the occasional case, splenectomy may be indicated, although feeding liver has greatly reduced the percentage of cases in which splenectomy would be advisable.

The removal of the spleen is at once followed by palliation much more marked and prolonged than that following blood transfusions, and the patients lived two and a half times as long as comparable patients in whom the spleen was not removed. A few of these patients are still alive, following splenectomy, after a number of years, but are not cured.

In sixty-two cases of splenectomy for pernicious anemia, there were four deaths.

Polycythemia vera.—I will speak of only one other condition and that is polycythemia vera. This disease has been so contradictory in the results of splenectomy as compared with its pathologic expectation, as to amount to a paradox.

In polycythemia vera the spleen is enlarged, the liver is enlarged, the hemoglobin varies from 100 per cent to 130 per cent, and the red blood cells may run as high as 10,000,000 or 12,000,000 in each cubic millimeter. The spleen was removed in three of these rare cases in the clinic, in one with remarkable improvement lasting now nearly eight years. The liver of this patient is still large and hard, the hemoglobin runs about 100 per cent, and the red blood cells about 6,000,000, but the patient is, to all intents and purposes, well. The second and third cases are too recent for evaluation.

DISEASE ASSOCIATED WITH ABNORMALITY OF THE WHITE BLOOD CELLS

In animals below the amphioxus only white blood exists, and copper generally takes the place of iron in the circulating fluid. In the lowest vertebrates only traces of hemoglobin are to be

found. In the human fetus, at the earliest stage, only white blood exists. In the various types of leukemia there seems to be a pathologic reversion to the primitive condition.

Splenomyelogenous leukemia.—In splenomyelogenous leukemia there is an enormous increase of white blood cells, even to 500,000, or above, but these cells are without function, and have the malignant characteristics of large nuclei and enlarged nucleoli. The work of Wilson, MacCarty and Broders has shown that the large nucleus of the embryonic cell acts as the oxidizing agent, in obtaining nourishment for the rapidly dividing, as yet nonfunctioning cell, and that the large nucleolus establishes in the cell malignant characteristics.

In splenomyelogenous leukemia, the spleen, like all the lymphoid structures, is extremely susceptible to radium and x-ray, and this sensitivity renders these agents of first importance in palliation. There comes a time, however, when probably by reason of radiologic encapsulation of the spleen, they lose their effect. It has long been known that anything which will reduce the size of the spleen will reduce the percentage of the white blood cells, and that the red blood cells become greatly increased in number, with relief of the anemia. This fact has led us in forty-six cases to remove the spleen, which we found could be done quite readily after first reducing its size with x-ray and radium. Do not reduce below 30,000 for fear of toxic results.

These patients were all relieved temporarily, and a few are alive, although not cured, five, six, or more years after splenectomy.

In addition to these cases in which the disease was well marked, and there could be no doubt as to the diagnosis, the spleen has been removed in some atypical cases which, as cure resulted, have been classified in a subdivision of splenic anemia. In cases of younger persons, otherwise in good condition, and in the earlier stages of the disease, as well as in atypical cases, splenectomy may be considered in splenomyelogenous leukemia.

In the forty-six cases of splenomyelogenous leukemia in which splenectomy was performed, there were three deaths in the hospital.

FILTRATION OF INFECTIOUS AND TOXIC AGENTS

The strainer function of the spleen is well exemplified in the enlargements present in splenic anemia, tuberculosis, syphilis, typhoid fever and malaria.

Splenic anemia.—Splenic anemia is the most common type of splenomegaly in which splenectomy is performed. The spleen is large, the patient suffers from anemia, often intermittent, and when the disease is well developed, there often are hemorrhages from the stomach, pallor, weakness, great reduction of the hemoglobin and the red blood cells, and in the majority of cases a reduction of the white blood cells, often to 3500. Sometimes the white cells are increased rather than diminished, usually to not more than 10,000 or 12,000. In the late stages, described first by Banti in children, there may be cirrhosis of the liver, attended by ascites and other symptoms of hepatic insufficiency.

The cause of splenic anemia is not understood. The spleen shows an enormous amount of fibrosis, with atrophy of the pulp cells, and thrombophlebitis, perhaps the result of bacteria which have been strained out of the blood and destroyed, or toxic material which has failed to be detoxicated. The condition of the spleen resembles that to be found in certain chronic types of septic or syphilitic splenomegaly. Because the spleen in this condition usually is adherent and often extremely adherent, splenectomy may be difficult and attended with considerable risk. In the earlier cases with the patients in good condition, the risk is slight, but as patients even in the late stages, with cirrhosis of the liver, ascites, and marked hemorrhages, will often get well and remain well after the spleen is removed, the conscientious surgeon will remove the spleen in terminal conditions in which the risk is high.

It would appear that cirrhosis of the liver results from toxic material gathered in the spleen and sent to the liver, which the liver, failing to detoxicate, attempts to encapsulate diffusely, with the introduction of general fibrosis. The liver has the greatest power of regeneration of any organ in the human body. In the dog, by removing not more than a third of the liver at a time, the entire liver can be removed and will be replaced within the year.

In about 10 per cent of the cases in which recovery has taken place after splenectomy, the patients have died some time in the next ten years of hemorrhage from the stomach, probably from ruptured varices in the lower end of the esophagus. In our series of 148 cases, there were fourteen deaths following splenectomy.

Tuberculosis.—In nine cases of tuberculosis of the spleen the spleen was removed, with cure in five. One patient died from acute miliary tuberculosis, possibly due to rupture of tuberculous abscesses in the parenchyma, resulting in a vascular infection at the time of the operation. One could not be traced, and two patients have developed other manifestations of chronic tuberculosis.

Syphilis.—In ten cases of intractable syphilis with enlargement of the spleen, splenectomy was performed, with one death. In these cases the symptoms of chronic anemia were almost immediately relieved, and the Wassermann reaction on the blood became negative for the first time.

Typhoid fever has almost disappeared, and malaria is now under such good control by modern treatment as to give little occasion, in this country at least, for splenectomy for the relief of chronic splenomegalia of such origin.

SPLENIC NEOPLASMS

Benign tumors of the spleen are usually secondary in character, due to hemorrhage or injury. Benign lymphomas are also seen. In cases of this type splenectomy gives good results.

Primary malignant neoplasms are usually of the so-called lymphosarcoma type and vary greatly in malignancy, and not rarely may be

cured by splenectomy. In one case a very large lymphosarcoma of the spleen was removed. The patient, a young married woman, lived eight years and became the mother of three children. She died from metastasis.

In that curious disease described by Gaucher, in which the spleen is huge, with deposits of the specific round cells in the liver, the removal of the spleen early may result in remarkable palliation, lasting so many years as practically to amount to the cure of an otherwise intractable and ultimately fatal disease.

Secondary metastatic malignant tumors of the spleen are common and are not affected by radium and x-ray to a greater extent than malignant tumors elsewhere, because the cells are characteristic of the primary growth and not of the spleen.

In conclusion, a few words with regard to the splenectomy: Make an incision just to the left of the median line, or a transverse incision of adequate size. Carry out the two fundamental surgical requirements: See what you are doing and leave a dry field. As a last admonition, do not remove the spleen when the patient is on the down grade from the disease, but rather by means of transfusions and general preoperative care, start the patient on the up-grade before operating.

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ANOXEMIA*

By Major Wood S. Woolford
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San Diego

ON casting about for a subject it occurred to me that you would be interested in anoxemia—low oxygen and its effect on the flier.

During the last war, or rather during its later stages, combats at elevations of 18,000 and 20,000 feet were frequent. Since 1918 there have been great improvements in planes and engines. The supercharger in particular is coming into general use in military aviation, so that in future wars we may expect most of the aerial operations to be around the 25,000 and 30,000 foot levels. Anoxemia therefore is a subject of real practical significance to those of us now connected with the Air Corps and will be, no doubt, to many of you in event of another emergency. I am only going to touch upon the salient features and we will first review briefly the normal physiology of respiration and circulation.

The limits of established life on the earth today may be fixed at five miles above and one mile below sea level.

Life, whether in the sea, on land, or in the air, requires oxygen and nature has had to make the anatomical modifications necessary to obtain it in animals, birds, and fish.

In a wide sense respiration is the exchange of gases between a living substance and the medium in which it lives. In man this takes place in the blood through the lungs and depends upon the following physical factors:

1. Henry's law: The absorption of a gas by a liquid varies directly as the pressure.
2. The law of partial pressure: If a liquid be exposed to a mixture of gases it will absorb each gas in the proportions in which it exists in the mixture.

There are two other factors, namely: the temperature and the kind and quantity of salts in the liquid. These play but small part, so we will disregard them.

Man's respiratory system is adapted to the conditions obtaining at lea level, where the air contains about 21 per cent oxygen. In the depths of the lungs this percentage is reduced to about 15 per cent on account of dilution with residual air and water vapor. The partial pressure of the oxygen in the inspired air is reduced from 159 millimeters of mercury to 103 millimeters in the lung alveoli.

The reverse condition obtains as regards carbon dioxid: alveolar air containing about 4.5 per cent, and atmospheric air about .04 per cent; oxygen therefore diffuses inward and carbon dioxid outward.

There is a chemical ratio maintained at all times under normal conditions in the blood plasma between the carbonic acid and the sodium bicarbonates. The normal proportion is about three to sixty. If, for example, an individual exercises he produces more carbon dioxid, the carbonic acid is increased and the individual breathes more rapidly and deeply to wash out or eliminate the excess carbon dioxid and restore the normal equilibrium. The respiratory center in the brain stem which controls breathing is affected by a respiratory hormone, which is the H-ion concentration, and slight changes in this concentration cause stimulation or lack of stimulation, as the case may be.

This is a sketchy account of external respiration, but it suffices to make clear what is to follow.

ALTITUDE BLOOD CHEMICAL CHANGES*

Exposure to high altitude produces a deficient oxygenation of the blood (anoxemia) as follows:

As one ascends there is a gradual but constant lowering of pressure. At sea level, as we have seen, the oxygen pressure is about one-fifth of the atmospheric pressure (159 millimeters of mercury)—it is less in the lung alveoli; at 10,000 feet the oxygen pressure is reduced to 108 millimeters of mercury, and at 20,000 feet this pressure has been further reduced to only 74 millimeters. The diffusion of this gas is reduced directly as the pressure; consequently the blood's supply is insufficient and the condition of anoxemia exists. Concomitantly with the reduction of blood oxygen there is a decrease in the carbon dioxid. Oxygen want causes an increase in the rate and depth of respiration which washes the

* Read before the California Medical Association in General Meeting at the Fifty-Eighth Annual Session, May 6-9, 1929.

* Much of the material in the paragraphs on altitude blood changes and the body compensations has been taken from the published work of the Army School of Aviation Medicine and from Major L. H. Bauer's book "Aviation Medicine."

carbon dioxid out of the blood to such an extent that the chemically basic elements predominate so that an alkalosis or relative increase above normal is present. The reduction of the blood carbon dioxid interferes with the normal carbon dioxid oxygen exchange between the blood and the tissues. Anoxemia is, therefore, a condition in which the blood oxygen is reduced below the needs of the tissues and in which the blood carbon dioxid is so reduced as to interfere with internal respiration, preventing the body tissues from utilizing what oxygen there is in the blood.

ANOXEMIA

The reactions of the body to low oxygen vary with the rapidity of its occurrence and the degree to which carried. The anoxemia of the mountain climber is of slow development, and its manifestations are quite dissimilar from the acute type occurring in the aviator. We are not concerned with mountain sickness and will dismiss it with this mention.

AVIATION ANOXEMIA

The modern airplane quickly transports the flier from normal to low atmospheric pressure and consequently the physical and mental symptoms of oxygen depletion occur quickly. In susceptible individuals symptoms may begin to develop at 10,000 feet, although most people are not particularly affected at this level. Most people, however, will sooner or later show symptoms at 15,000 feet.

BODY COMPENSATIONS

The oxygen shortage to which the flier is subjected produces an oxygen want in the tissues; he has air hunger so that he begins to breathe deeper, and somewhat later his respirations become more rapid. With these respiratory changes there is an increase in the circulatory rate. In a good reaction there is little increase in the systolic or diastolic pressure until the anoxemia is pronounced. In a poor reaction, however, at a comparatively moderate altitude, 10,000 to 15,000 feet, the diastolic pressure will fall, quickly followed by the systolic and the pulse rate, and the individual will lose consciousness. This is the fainting type of reactor. In the best type of reactor, as the pressure is reduced there will be a gradually increasing respiratory rate and depth, a gradually increasing pulse rate and systolic pressure, the diastolic pressure holding or increasing slightly until the individual's consciousness will become clouded from anoxemia before he collapses. In other words he is "out" on his feet.

SYMPTOMS NOTED ON REBREATHER TESTS

An apparatus has been devised to produce low oxygen at sea level and is used by the air medical officers to determine the ceiling or upper limit to which each flier can ascend and retain his efficiency. Numerous observations have been made, and the symptoms of anoxemia, in addition to those noted above, are in their most frequent order of occurrence as follows:

1. Inattention and loss of alertness. Purposeful movements become hesitating, groping and inaccurate. Emotional changes—moodiness or depression, boisterousness, irritability, anger.
2. Muscular incoördination.
3. Dimness of vision and hearing. Pallor of skin with local cyanotic tinge (about the ears).
4. Double vision.

It is important to know that 90 per cent of those tested showed mental inefficiency with some motor disturbance, as the factors determining their ceiling. These men continued to function, but very ineffectually; their mentality was benumbed, and they were not aware of their own mistakes. Even after a wretched exhibition of efficiency, a reactor will frequently argue that he was doing his tasks splendidly and protest the results of the test. It is very like the hopelessly drunken individual protesting his sobriety, who, to prove his assertion, will give a ludicrous exhibition of straight walking. There are, in fact, many points of similarity between anoxemia and acute alcoholism.

The aviator is usually conscious of the fact that he needs to breathe more deeply when he reaches altitudes above 15,000 feet. He will tell you that he breathes with open mouth, more deeply and occasionally more rapidly. The insidious effects of high altitude and the impairment of the flier's judgment are well shown in Major Schroeder's report following his attempt to establish an altitude record:

> I did not seem to be able to go above 23,000 feet at any time without feeling a sort of sleepy, tired, cross and hungry feeling, which I was unable to overcome except by the use of oxygen. Without the use of oxygen at these altitudes, I would feel that I was doing everything just right, and even if the aeroplane would get into some critical position and I could see when I looked down that the earth that should be underneath me was not there any more, but was way over on the side of the machine, yet I believed I was flying all right, and that my flying position was right, but the earth was in the wrong place. So after these experiences, I decided that I would have to overcome these dangers, and the way I did it was to keep my mind on one thing; and that was, when the earth was in the wrong place, use oxygen. This I did and found that it worked out very well. . . . The following experiences and sensations I noticed during my flight were due to lack of oxygen. I took off at 1:45 p. m., Wednesday, September 18, 1918, and made a steady circular climb, passing through clouds at 8000 feet, 12,000 feet, and 16,000 feet. . . . When I reached 25,000 feet, I noticed the sun growing very dim, I could hardly hear my motor run, and I felt hungry. The trend of my thought was that it must be getting late, that evening must be coming on and that was the reason the sun was getting so dim. But I was still climbing, so thought I might as well stick to it a little longer, for I knew I could reach my ceiling pretty soon, then I would go down, and even though it were dark, I could land all right, for I had made night landings many times before; and so I went on talking to myself, and this I thought was a good sign to begin taking oxygen, and I did. I was over 25,000 feet and the temperature was 60 degrees centigrade, below zero. As soon as I started to inhale oxygen, the sun grew bright again, my motor began to exhaust so loud that it seemed something must be wrong with it. I was no longer hungry and the day seemed to be a most beautiful one. I felt like singing with sheer joy as I gazed about through the small portions of my goggles, which had no frost, due to a drop of oil which had splashed on them from the motor. . . . When I was about 27,000 feet I had to remove my goggles, as I was unable to keep a steady

climb. My hands by this time were numb and worried me considerably. The cold, raw air made my eyes water, and I was compelled to ride with my head well down inside the cockpit. I kept at it until my oxygen gave out, and at that point I noticed my aneroid indicated very nearly 29,000 feet. . . . The lack of oxygen was affecting me and I was beginning to get cross, and I could not understand why I was only 29,000 feet after climbing for so long a time. I remember the horizon seemed to be very much out of place, but I felt that I was flying correctly, and that I was right and the horizon was wrong. About this time the motor quit, I was out of gasoline, the propellor stopped and everything was quiet, so I went down in a spiral. When I had descended to about 20,000 feet I began to feel much better, and realized that the lack of oxygen had affected me. . . . I noticed that, as I descended, the air seemed to be thick and stuffy, but very nice and warm.

This illustrates in a very interesting way the effects of altitude. It must not be imagined, however, that everyone can go to these heights, because most persons cannot. Major Schroeder was in the pink of physical condition, he was accustomed to flying at high altitudes, and had undergone training for this particular flight. The manner in which the symptoms of anoxemia clear up on the administration of oxygen is strikingly illustrated. Our regulations now require that oxygen be carried on all flights above 15,000 feet or on extended flights at that level.

Rockwell Field.

PHYSIOLOGY IN SURGERY*

By John Homer Woolsey, M. D.
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VARIOUS types of treatment frequently differ but little in the speed of recovery, the course of recovery, and not at all in the result. This is common observance to physicians, and does not pass unobserved by the laity. The facts that a jaundice neonatorum will clear as rapidly without any special treatment as it does with "liver pills"; that an infected wound will heal as quickly by rest and heat, as it does by frequent application of antiseptics, and that a duodenal ulcer in the early stages will heal as quickly by rest and diet as it does by excision or by mechanical deflection of the food, suggests that there must be some common underlying factor. This common factor is tissue function—physiology.

Today may well be called the period of physiology. The study of the preparation of the patient for operation, the postoperative care, the prevention and treatment of shock, the study of tissue metabolism, the use of various basic salts to keep the body at an even keel, the value of fluids as a whole, the balancing of the circulation in an extremity, the scientific employment of light therapy in its various forms, all evidence this to be the period of physiology.

A few years ago an operation was considered correct if performed according to the proper anatomy. Today a surgical procedure must also conform to the laws of physiology. Even the minutest detail of the procedure should be with tissue function in mind. From the standpoint of physiology the following subjects are of paramount interest to us in surgery; tissue growth and repair, the body's need of fluid, the body's need of the inorganic compounds, and atraumatic technique.

TISSUE GROWTH AND REPAIR

For the first six days in wound healing, the connective tissue cells are soft and succulent, while by the tenth day as a rule, they are of a firm, strong type. On such observations our opinions are based on allowing the patient up and about by the tenth or twelfth day postoperatively. The epithelial cells grow across the severed area or over the wound by a gradual proliferation of young tender cells. It is important to treat both these connective tissue and epithelial cells with great care, yet, repeatedly one observes chemicals or antiseptics being employed that injure or kill these cells far more than they ever kill or inhibit infection.

During the recent great war we learned, as never before, the rôle of devitalized tissue. It acts as a nidus for infection. A wound never heals until the dead tissue is removed or extruded. Yet one frequently sees such wounds, especially those of the hands, being allowed to go on day after day without proper treatment—a debridement.

Granulation tissue in a wound or after a burn is repeatedly and wrongly cut away or cauterized, causing thereby a correspondingly thickened scar. The proper treatment such as the mechanical cleansing of the area, a dressing to aid in epithelization or early employment of skin grafts, would have allowed earlier healing and given results far less disfiguring.

Article after article on skin grafting emphasize the importance of the preparation of the area to be grafted, the type of dressing or such other aspects of the problem, but fail to consider or emphasize or relate the procedure to the basic physiologic principle upon which successful skin grafting rests—the securance and maintenance of a sufficient blood supply to the graft. Any procedure or any dressing must obtain this if success is to follow.

The Orr treatment for osteomyelitic processes now occupies a prominent place in our medical journals. This treatment has a real physiologic basis—growth of tissue without interference. What does a large proportion of our profession do? They accept this without consideration as they do most anything published. They employ it without due regard to other concomitant basic conditions such as the condition of the tissue involved, the acuteness of the infective process or the type of infection present. A critical sense here, as elsewhere, is a protection.

Gentleness, chemical and mechanical, in order not to injure the growing cell but to assist it, and measures to assist in securing and maintaining an adequate blood supply, be it rest, elevation, immobilization, pressure, vaselin dressings, or

* Chairman's address, General Surgery Section, Fifty-Eighth Annual Session of the California Medical Association, May 6 to 9, 1929.

heat, are methods based upon sound physiology; methods at the basis of all proper treatment and should be more widely and more intelligently used.

FLUIDS

Water is a constituent part of all the tissues of the body and varies in content from 50 to 90 per cent according to the tissue. Offhand this should make one think that fluid in the treatment of physical ailments is most importnat. Indeed this is quite widely recognized but, I am confident, too seldom applied. The elimination of the body waste products is by the intestinal, urinary, respiratory and cutaneous tracts, and any interference with their function reacts unfavorably upon the patient's general condition. Fluid in proper amounts is the primary factor in aiding the processes of waste elimination. Where dehydration is present preoperatively, it is far more important to give the patient fluids than it is to proceed with surgery too soon. During operation a patient loses considerable fluid by the skin and respiration, and this should be replenished and even greater supply given while the patient is undergoing such a strain. Every patient having a major operation should, in my opinion, have during operation, subcutaneous salt solution administered. Especially is this true in obstructions of the gastro-intestinal tract, in thyrotoxicosis, in surgery on the kidney, and in prolonged surgical procedures under ether anesthesia. Postoperatively the maintenance of the fluid intake has demonstrated beyond question that the clinical course is far smoother and safer. Three thousand cubic centimeters daily should be the goal of intake of the average adult, and for children a comparable amount according to age. It can best be given in the thigh, inner or outer side, as one prefers. Subpectoral clysis undoubtedly interferes with the respiratory movement.

The caloric value of fluids is of importance, it is true, but only secondarily so. When needed, the 10 per cent glucose properly prepared and given intravenously is recommended. Stronger solutions are more likely to injure the wall of the vein or give complications if leakage occurs.

INORGANIC COMPOUNDS

The function played respectively by the substances, sodium, potassium, calcium, phosphorus, iodin, and chlorin is right now the active study of physiologists and clinicians of the world. As students we learned that sodium, potassium, and calcium in some way maintains the body balance in fluids and that sodium and potassium have an irritant effect, while calcium has a depressant effect upon tissue reactions. We see, in alkalosis, where the sodium or potassium ion predominate or where the calcium ion is lacking, an irritant effect even to tetany, while under opposite conditions, in acidosis, a depressant effect is obtained.

$$K\ (\text{constant}) = \frac{Na^{+} + K^{+} + OH\ (H\ CO_3) \rightarrow \text{irritation (alkalosis)}}{Ca^{++} + H^{+}\ (\text{acidosis}) \rightarrow \text{depression}}$$

In this equation if the numerator is increased or the denominator decreased, alkalosis will occur with increased irritability of the tissue, while if the opposite occurs acidosis takes place and a depression of tissue function. We have no more specific knowledge for clinical use of the sodium or potassium ions, but knowledge of the calcium ion has increased.

Calcium deficiency is noted in the loss of parathyroids—is unavailable in instances of loss of gastric or duodenal secretions, whether this be by vomiting, by fistula, or by continuous gastric or duodenal lavage, and plays a part in the failure of the clotting of the blood in jaundice. Calcium can most quickly be replaced by intravenous administration of 10 cubic centimeters of 5 per cent calcium chlorid. Collip's parathyroid hormone may be used subcutaneously, but takes approximately twelve hours to obtain maximum effect and consequently is of value only over a long period of stimulation. Calcium lactate by mouth, if given two to three hours before ingestion of food and with some lactic acid preparation, as buttermilk, is also effective, but is not effective when taken immediately after meals, according to Gunther and Greenberg.

The magic effect of phosphorus and calcium combined with ammonium chlorid in lead poisoning—locking up the lead in the osseous system and then liberating it at intervals in almost determinable amounts has reduced the risk in these patients.

Iodin in the form of KI_3, Lugol's solution, has provided the means for the preparation of the hyperplastic, thyrotoxic patient, so that the operability of this condition is increased to approximately 100 per cent. A warning is, however, necessary to those who attempt to use it over a prolonged period as a cure, for thereby good risks are changed into desperate conditions and unhappy results have and will occur.

The chlorin ion is considered more important today by some than its basic ion, sodium. The combination is more likely the explanation. Orr and Haden and others have demonstrated the tremendous benefit of sodium chlorid in loss of upper gastro-intestinal juices as in obstruction, fistula, and gastric lavage. The method of gastric and duodenal drainage as originally described by Bassler and Matas, and to which the Connel suction has been adapted by Ward, should be employed in degree to the patient's condition and coincidentally fluids, preferably sodium chlorid, should be given as recommended above.

ATRAUMATIC TECHNIQUE

Atraumatic technique in gastro-intestinal surgery, my chief interest, is equally as applicable to other aspects of surgery. Gastro-intestinal surgery means opening of the peritoneal cavity, the exposure of the viscera to a condition for which they are not prepared, the severance and apposition of a relatively easily injured tissue, a contact with infectious processes, and interference, be it

less or great, with the portion of the human anatomy that has more than all others to do with assimilation and metabolism.

As a student, it was assigned to me to demonstrate the shock of acapnia, described by Yandell Henderson. This experiment made a tremendous impression upon me, and today, as a result of this demonstration, to a large extent I take the utmost care in protecting the viscera from undue exposure. I recommend this to you in the fullest degree. The type of incision, the less retraction of the wound, the exposure from the abdominal cavity of only the area to be repaired, and the use of hot, moist tapes are the essentials.

Could one see each individual cell with the naked eye, what injury of tissue would be our vision. The avoidance of contusing and crushing clamps where possible, the clean knife-blade severance of tissues, the noninjury of blood supply, the careful hemostasis with fine, nonirritating suture material, and the careful approximation of tissue with nontraumatic needles and proper sized, absorbable suture means quicker healing, less absorption of broken-down proteose material, and therefore less shock.

One would not think of radical surgery in an acute or subacute, pelvic condition. One would not attempt any constructive surgery in the presence of an infectious lymphangitis. It has been demonstrated that the gastro-intestinal wall is pervious to a dye such as acriflavin. It has been observed that in a colitis, microörganisms invade the bowel wall and contiguous tissue. In inflammatory conditions, as a large, penetrating, or slowly perforating duodenal or gastric ulcer, or in an intestinal obstruction, be it acute or chronic, as from a malignant, rectal growth, there is a septic invasion of the bowel wall and neighboring tissue. The peritoneum will handle only a relative amount of infection, and the body functions of assimilation, metabolism, and elimination under such circumstances are already quite disturbed. Therefore it is our duty not to proceed with radical surgery in these inflamed, potentially infected areas, and expose wide, raw surfaces for septic absorption. We should first allow the tract to return to normal by some more temporary or multiple stage measure, as, for example, a Billroth II or Devine exclusion procedure for a complicated duodenal or gastric lesion; a cholecystostomy for an acutely infected gall bladder; or a preliminary enterostomy for a malignant obstructive lesion of the intestinal tract.

CONCLUSIONS

1. In consideration of publications and recommendations let us always have a critical sense.

2. Before we proceed with surgery let us ask ourselves this question: Will this procedure aid the body processes to return to normal the most surely and the most completely?

3. Let us not be just skillful artisans, but let us be scientific surgeons and mindful of the importance of anatomy and pathology, let physiology guide our surgery of today and tomorrow.

490 Post Street.

CARDIOSPASM*

By H. J. Hara, M. D.
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Discussion *by D. D. Comstock, M. D., Los Angeles; Kenneth S. Davis, M. D., Los Angeles.*

GENERAL CONSIDERATIONS

THE esophagus is a neuromuscular tube about nine inches long. It connects the pharynx with the stomach and serves for the passage of food. Much of our conception of the physiology of deglutition we owe to Meltzer [1] and Cannon [2] and to their respective coworkers.

In the process of swallowing, a solid bolus is propelled by the wave of peristalsis, which is characterized by the simultaneous dilatation of the lower segment immediately in front of, and constriction behind the bolus. On arriving at the cardia the sphincter, which is ordinarily closed, relaxes for a moment to let the food pass into the stomach. On account of the difference in the musculature the rate of peristalsis is much faster in the upper part than in the lower. The innervation of the esophagus is derived from the vagus and sympathetic fibers—plexus of Auerbach and Meissner. Cannon has shown that in the lower part of the esophagus the waves of peristalsis travel independently of the vagus. Thus the sympathetic nerves of the lower esophagus and cardia are capable of the propulsion of food when called upon, regardless of the integrity of the extrinsic nerves.

One of the disorders of the lower esophagus in which dysphagia and obstruction play a prominent feature is cardiospasm. This is characterized by dilatation and hypertrophy of its musculature associated with functional stenosis of the lower end, usually of slow onset and long duration.

HISTORICAL

The first authentic case of cardiospasm appears to have been reported by Purton [3] in 1821. In 1878 Zenker and von Ziemssen [4] collected seventeen cases in the literature. Little interest was aroused, however, until 1881, when von Mikulicz [5] recognized and described the etiological significance of spasm in diffuse dilatation of the esophagus. The original theory of Mikulicz placed the site of the disease at the cardia, and the spasm as the primary cause, hence he called this condition cardiospasm.

Rosenheim [6] attributed the cause to atony of the esophageal musculature.

Krause [7] suggested that simultaneous development of cardiospasm and paralysis of the circular

* A Critical Review of the Literature—With Analysis of Forty-Four Cases Treated at the Massachusetts General Hospital During the Past Fifteen Years.

Thesis submitted to the faculty of the Graduate School of Medicine, University of Pennsylvania, Philadelphia, in partial fulfillment of the requirement for the degree of Master of Medical Science.

The final year of graduate study under the extramural preceptorship of Harris P. Mosher, M. D., professor of laryngology, Harvard Medical School; chief of throat service, Massachusetts General Hospital and Massachusetts Charitable Eye and Ear Infirmary, Boston, Massachusetts.

muscle, due to degenerative change in the vagus, might be the etiology.

Einhorn [8] in 1888 considered that the obstruction might be due to the incoördination of the muscular movement of the esophagus.

Rolleston [9] in 1896 advanced a similar view, but more explicitly placed the fault on the longitudinal muscular fibers, in that they did not help to dilate the cardia at the moment when the esophagus was ready to propel food into the stomach.

Zenker and von Ziemssen [4] thought the condition was congenital in origin. Walton [10] entertained a similar view and stated that the incoördinate action, whether it was spasmodic or simply a failure to relax, must have been present at birth. He argued that a considerable number of cases have been reported in young children; that many adults, when care was taken in eliciting the history, dated their symptoms back to early childhood; that among those whose symptoms were of a comparatively short duration roentgenological and esophagoscopical examinations often revealed advanced pathological changes in the esophagus, all of which strongly pointed to a congenital origin.

Held and Gross [11] believed that (*a*) the vegetative nerve imbalance, due to inherited weakness; and (*b*) the involvement of the vegetative system due to an inborn status asthenicus or status thymicolymphaticus, play an important rôle in the etiology of this disease. They also named (*c*) the infections by toxic and metabolic agents; (*d*) the reflex irritability from the neighboring organs as kidney, liver, and gall bladder; the diseases of lungs, of stomach and intestine; or (*e*) local disorders within the gullet as factors in the production of this condition.

Through anatomical, clinical and roentgenological studies Doctor Mosher [12] has clearly demonstrated that inflammatory changes in the structures both above and below the diaphragm brought on this condition. He has not insisted, however, that this was the sole cause of the disorder. He feels that there is an element of stricture and backward twist at the lower end of the esophagus, and that these two causes often act together.

In recent years Hurst [13] and independently of him, Brown Kelly [14] pointed out that fibrosis of Auerbach's plexus at the lower end of the esophagus interfered with the normal neuromuscular mechanism. They compared this process to the heart block which is caused by the degenerative change in auriculoventricular bundle. As to the fundamental causes of this neurotrophic disturbance nothing definite is yet known.

INCIDENCE

Age.—The ages vary. Jackson [15] treated an infant two days old in whom esophagoscopy was done, effecting a cure. Langmead [16] reported a case in which the typical symptoms occurred immediately after birth, and at eighteen months roentgenogram and esophagoscopy confirmed the original diagnosis.

The youngest patient treated at the Massachusetts General Hospital was a boy five months old, the oldest a man seventy-two years of age. From the hospital records there, the writer collected forty-four cases of cardiospasm which occurred between November 1911 and November 1926, a period covering fifteen years. Of this number about one-half were in the third and fourth decades.

Sex.—Exclusive of those cases of globus hystericus in which there was no characteristic change in the esophagus, and by reason of which could not properly be classed as true cases of cardiospasm, there were twenty-five males and nineteen females, or, roughly speaking, a ratio of 5 to 4. Vinson [17] collected a series of five hundred cases at the Mayo Clinic; of these, 294 were males and 206 females. The ratio of these figures corresponds closely to those collected at the Massachusetts General Hospital.

SYMPTOMATOLOGY

In well-developed cases the symptom-complex is pathognomonic. Those cases that seek our aid are usually of long standing, always progressive since their beginning. The onset may be insidious or abrupt. Pain, dysphagia, and regurgitation are the three cardinal symptoms.

In the series of cases just mentioned, pain of more or less severity was recorded in eighteen. Earlier in the disease the pain was no more than a sense of discomfort, invariably intermittent, lasting only an hour or two, followed with a variable period of freedom. There was substernal pain in ten, and four of these described this as being sharp and lancinating. The remaining eight had epigastric pain which radiated at times to the back and especially to the left shoulder. These patients were not infrequently treated as having a mild form of indigestion or possible cholelithiasis.

In fourteen patients dysphagia was the prominent symptom. These people complained of food "sticking under the sternum" and took quantities of liquids to wash it down. Later each act of deglutition was accompanied by more or less obstruction as the food passed the cardia. The patients voluntarily selected a type of food which they could take with the least difficulty. As a rule solids caused more trouble and required considerable mastication. A few subsisted on liquids or semisolids only. The temperature of the food ingested had a definite influence on some. Usually extreme heat or cold was not well borne.

Finally there was another group of twelve, the characteristic manifestation being regurgitation. At first this was intermittent, only a mouthful or two being lost during or after a meal. With dilatation of the esophagus, however, regurgitation was delayed for hours or even days. In a few cases nocturnal regurgitation had been reported; this carried a danger of possible lung complication. The quantity of fluid regurgitated at times was more than the meal just taken, indicating stagnation of food from the previous meals or collection of saliva. Lactic acid, butyric acid, and other fermentative products were not infrequently in the regurgitated material.

When the obstruction persisted because of so little food reaching the stomach, the patients

Fig. 1.—Spindle-shaped or fusiform esophagus.

Fig. 2.—Pear-shaped or flask esophagus.

Fig. 3.—S-shaped esophagus.

steadily lost in weight. One of these cases was a woman who lost ninety pounds in five years, and another was down to sixty-eight and one-half pounds at the time of her admission.

PATHOLOGY

Site of Stenosis.—Originally Mikulicz laid the site of stenosis at the cardia. In recent years, however, this view has been much modified. The presence of the physiological sphincter has long been recognized.

Experimental work on rabbits by Payne and Poulton [18] has clearly shown that the part of the esophagus that plays sphincteric action extends some little distance above the diaphragm. Hurst [13] regards the last two or three inches of the human esophagus comprising the whole of the abdominal portion and sometimes to a very small part of the thoracic portion, as the sphincter. He bases this view upon the observation made during laparotomies performed for the relief of cardiospasm and a study of the esophagus in stillborn infants. Brown Kelly [14] holds a similar view, and it is at this portion of the esophagus that many other English observers place the site of "achalasia."

Jackson,[19] on the other hand, denies the presence of a sphincter at the lower end of the esophagus. He locates the cardiospasm at the "hiatus esophageus," and the spasmodic constrictions are of specialized muscle fibers there encircling the esophagus—the "diaphragmatic pinchcock."

Roentgenologic, esophagoscopic, and anatomic studies extending over a period of years led Mosher [12] to believe that the site of stricture is at what he terms the "liver tunnel." The terminal portion of the esophagus is not only surrounded by the cone of the diaphragm, but it is also encased by the left lobe of the liver. Owing to the position of the liver in front and the stronger left crus of the diaphragm behind, the terminal portion of the esophagus consists of a vertical part and a horizontal part. Where the two meet, the esophagus twists on itself and turns to the left.

In fluoroscopic studies on normal persons during the act of deglutition, when the diaphragm is up, the esophagus comes to a nipple-like point in the middle of the liver tunnel. With inspiration, when the liver is pressed down together with the diaphragm, then immediately the esophageal content is emptied into the stomach. In a certain number of cases of cardiospasm, Mosher pointed out, there is what he calls "reverse phenomena" in which the esophagus is closed momentarily when the liver is down, and opens when the liver is up. He considers that both the upper edge of the liver tunnel and the area at the junction of the two arms of the terminal portion of the esophagus are the usual sites of stenosis.

Dilatation.—Lambert [20] described three types of dilatation:

(*a*) The fusiform or spindle-shaped esophagus which is the commonest form of dilatation. It is characterized by the gradual widening of the lumen about midway between the cricoid cartilage above and the cardia below, where it gradually tapers to its normal size (Fig. 1).

(*b*) The pear-shaped or flask esophagus, the type on which Mikulicz laid special stress, is one in which the lower one-third or one-half of the esophagus is so dilated that it may at times be capable of holding two pints or more (Fig 2).

(*c*) The S-shaped is the rarest type. The two ends of the esophagus being fixed, with the increase in length, the esophagus bends until it becomes S-shaped (Fig. 3).

Hypertrophy.—Microscopically all the layers are thickened. The epithelium is generally thinned out. Later, as the fluids accumulate and fermentation goes on, the superficial layers are eroded and at some areas the entire epithelium is denuded. The mucosa is definitely thickened with evidence of chronic inflammatory changes as shown by the preponderance of plasma cells, small lymphocytes, and a few scattered polymorphonuclear leukocytes. The muscularis mucosa is also thickened. There is considerable fibrosis in the submucosa. Here the blood vessels increase in number as well as in

Fig. 4.—Longitudinal section of the esophagus at the lower end in a case of Doctor Mosher's. Male, 50, white; fifteen years' duration, finally died of pulmonary tuberculosis. The thickened muscularis mucosae shown in the center. The chronic inflammatory cells invading the deeper structures. Note the prominence of the blood vessels. Photograph by the writer.

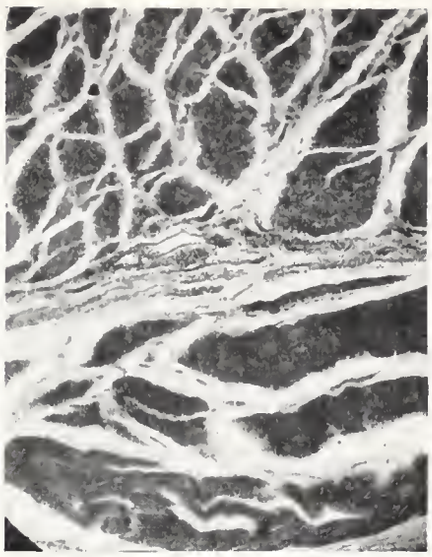

Fig. 5.—Hypertrophic muscular coats and the plexus of Auerbach without any ganglion cells. According to Dr. G. W. MacGregor, who prepared this tissue section, the average thickness of the inner coat measured 1.4 mm., the outer coat 1.1 mm., and the muscularis mucosae .3 mm. At the upper end of the esophagus one ganglion cell to four sections, and no cells in one hundred sections at the lower end. Photograph by the writer.

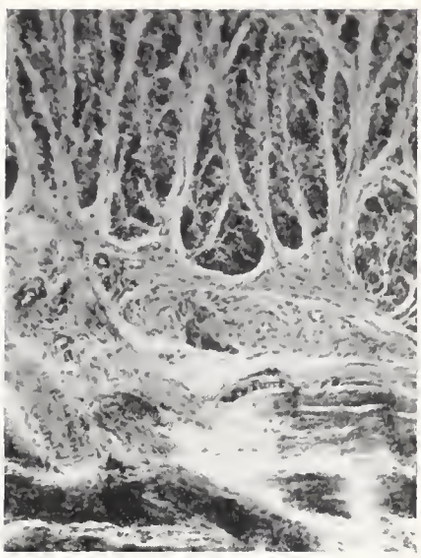

Fig. 6.—Longitudinal section of the lower end of esophagus of child at birth. The ganglion cells in Auerbach's plexus shown in the center. Photograph by the writer.

size, with marked perivascular infiltration by the inflammatory cells (Fig 4).

Both muscular layers are greatly hypertrophied (Fig. 5).

Associated with these changes there is perceptible diminution of ganglion cells in Auerbach's plexus. This is particularly conspicuous at the lower end and over the area where the dilatation is greatest (Figs. 6, 7, and 8).

Recently Irwin Moore [21] collected a series of pathologic specimens and published an excellent paper dealing with this phase in the study of cardiospasm.

DIAGNOSIS

The diagnosis is rarely difficult. If care is taken in eliciting the history it seldom leads to a wrong conclusion. The pain may simulate gastric ulcer or gall-stone colic. Syphilis and the previous swallowing of caustic must be excluded. Benign stricture at the cardia is rare.

Fluoroscopic Technique.—Fluoroscopic examination is the best means at our command. At Doctor Mosher's clinic the following procedure is usually carried out: The patient is stripped above the waist to the skin and a sleeveless gown is placed over his head. He stands behind a fluoroscopic screen, facing the examiners—the roentgenologist, the surgeon and his assistants. Rapidly but carefully the patient's heart, lung fields, and the movement of the diaphragm are noted; then the attention is focussed on the esophagus and the fluid level is noted if present. A sufficient quantity of bismuth-milk mixture, usually about one-half glassful, is given by mouth and the contour of the esophagus is studied from the front and from the side. The opaque meal reveals the presence or absence of abnormal peristalsis, of hyperirritability, of hernia and diverticulum. As the fluid accumulates at the lower end, special attention is paid to the relation of the emptying time to the excursion of the diaphragm, the position of the lung tips and all other features that might assist in the diagnosis. Doctor Mosher's olive-tipped bismuth-coated rubber bag is indispensable in this work. It is much like the original Sippy bag and an inflating tube is connected to the ordinary Tyco sphygmometer as an indicator of the pressure exerted within. Rarely the pressure of more than five or six pounds is required. After the bag is withdrawn another glassful of the opaque meal, to which is added a dose of Seidlitz powder, is given. In a mild form of stenosis the

Fig. 7.—The cast of esophagus and stomach in case of cardiospasm. The esophagus moderately dilated at the lower half. From Doctor Mosher's laboratory, Harvard Medical School. Photograph by Werner Mueller.

Fig. 8.—The same case. esophagus is opened, showing the dilatation and the thickness of the wall.

effervescing salt often overcomes the resistance. This is again studied under the screen. Inhalation of a vial of amyl-nitrite broken in a handkerchief accomplishes the same object. Several roentgenograms are then taken, in both anteroposterior and lateral positions, to check the fluoroscopic findings and again the roentgenologist and the surgeon go over the films together to avoid possible errors in the diagnosis.

Finally esophagoscopy is performed and the local disorders, such as ulcer, carcinoma, fissure, etc., are eliminated. Malignancy at the cardia, at times, is difficult to differentiate. In doubtful cases biopsy is done.

TREATMENT

The treatment of cardiospasm is essentially symptomatic. Shaw and Woo [22] classified the treatment according to the severity of the symptoms:

(*a*) Those of slight degree of obstruction require only careful dieting and attention to the general hygiene. The food should be nonirritating, highly nourishing in nature. This includes plenty of eggs, milk, cream, butter, well-cooked cereal, and fine vegetables. Meat should be given sparingly, if any, and then only scraped. It is much better to give a smaller quantity of food at frequent intervals.

(*b*) Those of more marked symptoms, but admitting a small-sized bougie, should have careful, systematic dilatation. This is by no means a new method. As early as in 1888 Russell [23] reported a sufficient series of cases to demonstrate the efficacy of this procedure.

For this purpose the Mosher bag is introduced under a fluoroscopic screen. When the tip drops into the hiatus the bag is gently passed an inch or two and a measured amount of air pressure is carefully exerted by inflating the bag. Excellent results are obtained by this method, and the patients may remain free from symptoms for weeks at a time when another such treatment is repeated.

(*c*) Finally those cases in which the obstruction is so complete as to prevent admission of even the smallest bougie should have gastrostomy, followed by some form of dilatation. Walton successfully treated sixteen such cases with only one death and that in a man sixty-six years of ago, who was already extremely emaciated, and died of heart failure seven days after operation.

Sedatives, which were much in vogue in the past, can no longer be considered efficacious. In view of the fact that a large number of these patients have a long-standing history, even dating back to childhood, every effort should be made for an early recognition of the presence of the condition, and proper and prompt treatment be instituted by the hands of an expert.

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DISCUSSION

D. D. Comstock, M. D. (401 Bailey Street, Los Angeles).—There are many things about cardiospasm that would lead one to concur in the opinion expressed in Doctor Hara's paper that the background of this affliction is an inherited lack of balance in the vegetative nervous system, in which predisposing soil there has been cultivated an added factor of nerve stress and strain with nutritional deficiency. It seems apparent also in most cases that in the course of time a chronic inflammatory element is added. In one of our

patients this was so evident that hot and cold douching of the esophagus was resorted to with definite benefit. This was accomplished by passing a small stomach tube into the pouch and alternately filling and aspirating the contents by the use of a hard rubber syringe. By thus washing out the mucus and decomposing food, the passage of the silk thread was facilitated. We have observed patients in whom tenacious milk curds and other foods would be retained for hours or even days. This atonic and dilated state of the esophagus is doubtless as much a part of the affliction as the cardiospasm itself and not simply secondary. It therefore should receive therapeutic consideration from the start. In one of our patients the stricture became so pronounced that not even water would pass through and, of course, neither was the passage of the thread successful. But before resorting to a gastrotomy a very gentle but persevering effort was made to pass a small-sized piano-wire bougie direct. This was passed down to the stricture through a quite stiff stomach tube which was not fenestrated on the side. After a half-hour of teasing, the bougie was successfully passed and, of course, the rest was easy. It should be added that thorough lubrication of the inside of the stomach tube was necessary.

One having much of this work to do should learn to build his own dilating bags which, if designed somewhat after the lines of an hourglass, are more sure to be held firmly in the stricture during the process of dilatation. The suggestion that emphasis should be placed upon building up the general nerve and muscle tone and nutrition of the patient is important.

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Kenneth S. Davis, M. D. (Saint Vincent's Hospital, Los Angeles).—The chief roentgenographic characteristics of typical cardiospasm are the smooth, symmetrical, blunt or conical obstruction at or near the cardia and the secondary dilatation of the esophagus above. This dilatation is usually marked; in some instances involving the entire esophagus. In cases of long duration the esophagus is usually somewhat elongated and may become either kinked or S-shaped. Thus we find the spindle-shaped, the pear-shaped, and the S-shaped types of dilated esophagus as described in the article under discussion.

Reversed peristalsis may be seen during the fluoroscopic examination; this finding, however, is very rare. Quite commonly the dilated esophagus is found to be filled with fluid through which the opaque barium slowly sinks in blobs.

From the roentgenographic viewpoint cardiospasm is to be differentiated chiefly from carcinoma and benign organic stricture. Carcinoma seldom ends exactly at the hiatus and there is usually noted an irregularity of the lower end of the barium shadow, whereas in cardiospasm the shadow is symmetrical and smooth. Furthermore carcinoma rarely causes the extreme dilatation of the esophagus so commonly seen in cardiospasm. Posttraumatic strictures generally occur higher in the esophagus than the cardia, and one can reasonably expect some irregularity at the site of the lesion. As Hara has already pointed out, an inquiry should be made as to the swallowing of corrosives in all suspected cases.

In view of the fact that filling defects at the site of the obstruction do not always signify organic lesion, and smooth, symmetrical regularity always indicate cardiospasm, great care should be taken to carefully coördinate the clinical and the roentgenographic findings. Esophagoscopy should be done in any case with indefinite clinical and roentgenographic findings.

The author states that gastrostomy should be performed in cases of cardiospasm in which bougies cannot be passed. In a large series of cases Vinson has seldom found it necessary to resort to this procedure, due to his success in passing bougies. He does this by first having the patient swallow a thread which, when anchored, serves as a guide for the bougie. By tensing the thread the bougie can be directed exactly to the constricted area which is then dilated. This method also eliminates danger of perforation.

For the fluoroscopic examination of the esophagus a special barium acacia mixture is commonly used. This mixture is exceedingly viscid and descends the esophagus slowly with a tendency to coat its walls rather than fill the lumen. In this manner filling defects are brought into plain view which ordinarily would be missed.

ACTINOMYCOSIS*

REPORT OF CASES

By Norman Epstein, M. D.
and
Paula Schoenholz, M. A.
San Francisco

Discussion *by George D. Culver, M. D., San Francisco; H. J. Templeton, M. D., Oakland; Roy W. Hammack, M. D., Los Angeles.*

ACTINOMYCOSIS is a well-known clinical entity and has been carefully described in all its details by many observers. The purpose of this report is to summarize some advances which have contributed to a better understanding of the condition, and have led to a more rational plan of treatment. The discussion is limited to actinomycosis of the jaw.

EARLY STUDIES ON ACTINOMYCOSIS

The view that actinomycosis is contracted by the introduction of such substances as infected grain, straw, and grasses into the oral cavity dates back to the work of Bostroem [1] in 1890. He had isolated a streptothrix from human cases of actinomycosis which was apparently identical with an organism found widespread in nature upon grasses and grains. This theory has been handed down in textbooks and in the lecture room since that time. Homer Wright [2] showed that the true *Actinomyces bovis,* first described by Israel and Wolff [3] in 1878, is not found outside of the animal body and that it has quite different cultural characteristics from the streptothrix of Bostroem. *Actinomyces bovis* is a compulsory anaërobe, difficult to grow, and grown best at body temperature. On the other hand Bostroem's organism grows luxuriantly on ordinary culture media, at room temperature, and is an aërobe.

F. T. Lord [4] in 1910 reported that he had isolated *Actinomyces bovis* from carious teeth and cryptic tonsils in patients who had no evidence of actinomycosis. This work seems to indicate that *Actinomyces bovis* may be a saprophyte which exists in the normal mouth and gastro-intestinal tract.

The source of infection in many cases of actinomycosis has been quite obscure, no history of contact with infected cattle being obtained. Many patients deny that they chew straw or grass or that they have been connected with rural life in any way. From a clinical standpoint it would seem more probable that the organisms exist as

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saprophytes in the mouth and gastro-intestinal tract and become pathogenic when the resistance of the tissues is lowered because of factors such as trauma and infection.

Although actinomycosis is unknown in California, Sanford and Voelker [5] were able to collect six hundred and seventy cases of the disease from the literature and by personal communications. It is found most commonly in the northwestern and middle-western states, but it occurs everywhere in the United States.

Males are affected more commonly than females, 80 per cent and 20 per cent, respectively. It is mainly a disease of youth, most cases occurring between the ages of twenty to thirty, but no age is immune. The disease may attack any tissue or structure of the body. In approximately 60 per cent of the cases the condition begins somewhere about the face and neck, 18 per cent occur in the abdominal wall and viscera, usually starting about the cecum and appendix and from there spreading to the liver. Fourteen per cent are found in the thorax. The bones are rarely involved. Primarily actinomycosis of the skin is quite unusual, the process usually involving the skin secondarily.

BACTERIOLOGY

The classification of actinomycosis has been a complicated and a much disputed question. Bostroem, Wolff and Israel, and Affanassjeff consider them bacteria; de Bary, Harz, Gasperini, Sanvagean and Radais place them among the hyphomycetes; while Rossi, Doria, Claypole, Kruse, and Lieske place them between these two groups.† On the one hand actinomyces resemble bacteria in size, thread formation, branching and arthrospore formation; on the other hand, hyphomycetes may be distinguished from the actinomyces by the size of the cells, their cell content and lack of radial striations. According to Lieske the actinomyces can be considered phylogenetically as higher bacteria, or reduced thread fungi, or a common antecedent of the bacteria and fungi. The following diagram will explain the relationship of the actinomyces to the fungi and bacteria.

Actinomyces < Oïdium, Hyphomycetes
Mycobacteria, Korynebacteria, Bacteria

Pathogenic as well as saprophytic strains of actinomyces are found widely distributed in nature. It is thought that the saprophitic strains are predominantly aërobic. The pathogenic strains isolated from infected tissue are anaërobic. All the intermediary forms from the long-threaded aërobic to the anaërobic bacillus-like type may be found.

Actinomyces can be readily cultivated on bouillon agar gelatin, milk, blood serum, potatoes, and other media. The reaction should be neutral since strong acid or alkali inhibits growth. Liquid media do not become turbid during growth, but fine white flakes develop along the walls of the tube and settle at the bottom as small white flakes or balls. In deep agar, colonies are irregular and hard. Freezing and sunshine do not injure the organisms; drying only slightly. They remain alive for five years. Aërobic actinomyces sometimes produce pigment; anaërobic strains do not.

Since pus from the discharging lesion is usually contaminated with aërobic saprophytes great difficulty is encountered in purifying the actinomyces. The strain isolated was cultivated in the following manner: A small amount of the discharged pus was planted into warmed (56 degrees Centigrade) beef heart media previously stratified with sterile vaselin. Another portion of the infected material was placed directly into one per cent glucose veal infusion agar shakes to which one-tenth per cent sterile human blood serum had been added. These tubes were incubated at 37 degrees Centigrade for seven to ten days. Some of them appeared contaminated with staphylococci, but several of the tubes remained clear for the first few days. Gradually white flakes appeared in the beef heart medium along the walls of the tube. During the next three to four days these flakes settled to the bottom in white solid masses. In the deep agar tubes, irregular shaped, cream-colored colonies developed in the depths of the agar. These colonies were removed with the aid of a Pasteur pipette. They were hard and sometimes difficult to remove from the agar. About ten such colonies were picked into fresh beef heart medium. These subcultures did not all develop. However, a good growth was obtained in several of the tubes which, upon microscopical examination and subculturing, appeared to be pure. Aërobic staphylococci were not present.

A vaccine from one of the purified strains was prepared in the following manner: One-tenth per cent sterile human serum was added to one per cent glucose veal broth and stratified with sterile vaselin. The culture was heavily seeded into these tubes and grown at 37 degrees Centigrade. At the end of three weeks the growth which had settled at the bottom of the tube was removed, examined microscopically for purity and placed in a large test tube. The cotton plug was dipped in formalin and reinserted into the tube, which was then sealed with hot paraffin to prevent evaporation of the formalin. After the formalin had been allowed to act at 37 degrees Centigrade for seven days, the culture was removed from the incubator, centrifugalized and washed twice with sterile salt solution, twice with absolute alcohol, and once with ether. The dried mass was then ground in a sterile mortar; ready to be weighed out in any desired quantity for vaccine treatment.

PATHOGENESIS

The usual form of actinomycosis or "lumpy jaw" begins somewhere about the oral cavity and extends into the subcutaneous tissues. A localized swelling develops which, in a few weeks, fluctuates and discharges a yellowish green pus. The abscess almost invariably points somewhere upon the skin.

In the pus which exudes yellowish particles can be seen which are known as the sulphur granules.

These granules are characteristic of the disease. They vary considerably in consistency from

† Cited from Schlegel M. Strahlenpilzkrankheit Aktinomykose Handbuch der pathogenen Mikroorganismen, V, 1927, p. 41.

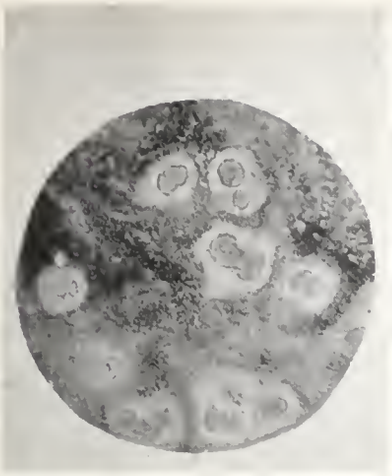

Fig. 1.—Sulphur granules in the pus. Low power.

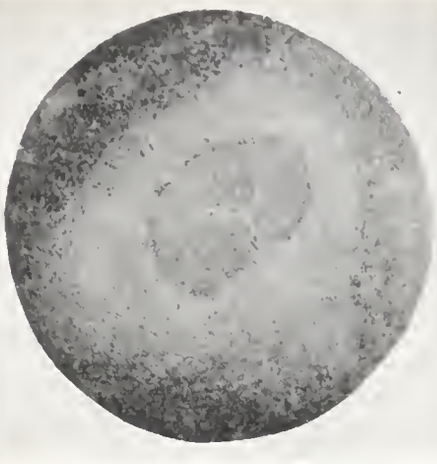

Fig. 2.—Sulphur granule. High power.

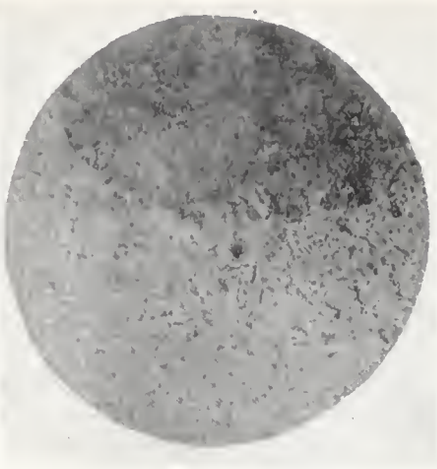

Fig. 3.—club forms.

stony hardness to that of a semisolid fluid. Microscopically the sulphur granule is composed of a central portion made up of closely interwoven myceliae and a periphery of club-shaped forms. (Refer to Figs. 1, 2, and 3.)

Club formation is probably a protective mechanism against the tissue juices. Occasionally particles simulating sulphur granules are seen in discharging sinuses, but they are usually clumps of bacteria.

Sooner or later a second abscess contiguous with the original lesion forms, and during the course of a few months a row of abscesses are present which follow the general direction of the jaw. The lymph nodes are not affected except in the presence of secondary infection. The process rarely metastasizes by way of the lymphatics, but may enter the blood stream causing abscesses in distant parts of the body, such as in the liver or lungs.

The essential pathology consists in a central necrosis of the tissues, a surrounding zone of leukocytes and an outer area of connective tissue. This fibrous layer is ineffectual in preventing the spread of the disease.

CLINICAL COURSE

The course of the disease is slow, lasting from one to three years. Occasionally the infection may clear up very rapidly, that is, in a few weeks, or it may be extremely chronic, lasting as long as fifteen years (Sanford and Voelker). The prognosis depends on the region of the body affected. Colebrook [6] states that in ten cases of actinomycosis in the face and neck nine were cured and one died; of eight instances of thoracic infection seven died and one was lost sight of; and of six abdominal cases five died and one is well.

TREATMENT

In evaluating any treatment for actinomycosis one must not overlook the fact that certain infections tend to recover spontaneously, particularly those involving the face and neck.

For many years potassium iodid has been considered a specific for the disease. But the drug has proved disappointing in many instances and has frequently failed to check the condition. Even in very large doses it has had no effect on the course of severe infections. Harbitz and Grondale [7] showed that potassium iodid up to 2 per cent strength in culture media failed to inhibit the growth of *Actinomyces bovis*. Probably the benefit seen with the iodids is simply from their action in aiding the absorption of inflammatory tissue.

As a result of this loss in confidence in the iodids a multiplicity of remedies have been put forward recently, among them being methylene blue, copper salts, roentgen ray, radium, and arsphenamin. Many cases have been reported in which vaccine therapy, using a specific vaccine of killed actinomyces fragments, seemed of definite value.

In one of the patients reported here it is of interest to note that the condition did not respond to potassium iodid by mouth, or x-ray therapy combined with surgical drainage of the abscesses, but when the iodid was given intravenously signs of iodism disappeared and the condition improved. Following nonspecific protein therapy, that is, the typhoid, paratyphoid alpha and beta vaccine intravenously, the condition responded quickly with a complete disappearance of all evidence of the disease. There has been no recurrence.

The most effective therapeutic regimen in the type of actinomycosis under discussion probably consists in the use of potassium iodid to tolerance, surgical drainage of the abscesses, small doses of roentgen ray, and the use of foreign protein therapy.

REPORT OF CASES

Case 1.—W. F., age nineteen, white, male, clerk, reported to the out-patient department of the University of California on July 27, 1927. He was referred with a diagnosis of actinomycosis.

Family History.—Unessential.

Past History.—Lived in California all his life. Clerical work. No contact with cattle. Has occasionally chewed straws. Has had the usual diseases of childhood.

Present Illness.—The present illness dates back to November 1926, when a swelling developed over the region of the left mandible. X-ray of the jaw showed an impacted left lower third molar. This tooth was extracted, but the swelling of the left side of the face persisted. A second x-ray showed no bony pathology. In January 1927 the swelling became fluctuant and,

Fig. 4 (Case 1)
Fig. 5 (Case 2)

upon incision, yellowish green pus was obtained. Examination of the pus showed *Actinomyces bovis*. The patient was placed upon potassium iodid by mouth until he developed a severe iodid acne. The abscesses were drained surgically. For several months the treatment was continued without improvement.

Physical Examination.—Negative except for skin condition of left side of face. (Refer to Fig. 4.)

Over the region of the left mandible are several indolent abscesses of a bluish color, fairly deep in the skin and following the general line of the jaw. They vary in length from 2 to 4 centimeters, and all contain yellowish green pus. No enlargement of the neighboring lymph nodes. The oral cavity is entirely negative.

Laboratory Findings.—Blood: Hemoglobin, 90 per cent (Sahli); red blood cells, 5,000,000; white blood cells, 8850; polymorphonuclears, 76 per cent; lymphocytes, 22 per cent; large monocytes, 2 per cent.

Urine: Negative.

Stool: Negative for occult blood and parasites.

Blood Wassermann: Negative. Kahn: Negative.

X-ray of left mandible shows no pathology.

Examination of pus obtained from abscesses shows the *Actinomyces bovis* as per Figs. 1, 2, and 3.

Biopsy: Chronic inflammatory reaction. Not distinctive.

Culture: Positive for *Actinomyces bovis.*

Clinical Course.—The abscesses were drained repeatedly. Sodium iodid, 20 per cent solution, 10 cc. was given intravenously. From August 3, 1927 to September 29, 1927 he received thirty such injections.

Under this treatment there was very definite improvement, but new abscesses continued to form. On October 17, 1927, the patient entered the University of California Hospital. He received four intravenous injections of a killed typhoid, paratyphoid alpha and beta vaccine, 75,000,000, 100,000,000, 125,000,000, and 150,000,000 organisms, respectively, at three-day intervals. Following each injection there was a chill and a rise in temperature to 38 to 39 degrees Centigrade. On October 25, 1927, he left the hospital.

In the latter part of January 1928 the patient returned to the out-patient department. He had no evidence of an active infection. There has been no recurrence.

Case 2.—F. M., age fifty-five, resident of Yreka, California. The patient was sent to San Francisco for diagnosis of an infection of the left side of his face. He presented a row of contiguous marble-sized, indolent abscesses following the general line of the jaw. (Refer to Fig. 5.) Upon incision yellowish green pus was obtained which contained large numbers of sulphur granules. (See Fig. 3.) Microscopically these granules proved to be *Actinomyces bovis.* We did not see the patient again. The data are, therefore, not complete.

COMMENT

Two classical examples of actinomycosis of the jaw are reported. From one case the *Actinomyces bovis* was cultivated and a specific vaccine was prepared. However, the patient was cured by foreign protein therapy, using a killed typhoid, paratyphoid A and B vaccine before the specific vaccine could be employed.

The iodids are helpful in treatment, but are not specific. When not tolerated well by mouth the drug may be given intravenously without disagreeable effects.

Inasmuch as the causative agent of actinomycosis is not found in nature, the theory that the disease is contracted by chewing straws, grasses, etc., is not well founded, and from a clinical standpoint this hypothesis in many cases does not fit the clinical history.

384 Post Street.

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DISCUSSION

George D. Culver, M. D. (323 Geary Street, San Francisco).—Epstein and Shoenholz have so clarified their points in their account of two cases of actinomycosis as to leave little for discussion.

The difficulty of arriving at a specific therapeutic procedure in the treatment of any disease is made greater if the disease is as uncommon as the one under consideration. No individual in dermatology sees many instances of actinomycosis. Frequently the patients disappear without giving the physician a good opportunity to conduct a satisfactory course of treatment.

One might object to the authors drawing such positive conclusions from the one successful case which was apparently cured by foreign protein therapy after

extensive use of sodium iodid intravenously. However, it is to be hoped that any such objection would not cause hesitancy in first choosing the foreign protein therapy in a like instance.

H. J. Templeton, M. D. (3115 Webster Street, Oakland).—The disapproval by the essayists of the theory that actinomycosis is caused by the chewing of straws, etc., illustrates the point that was recently made in the article, "The Perpetuation of Error in Dermatological Teaching," for this theory has been handed down from textbook to textbook.

In view of the reported excellent results in treatment of blastomycosis and coccidioidal granuloma by means of potassium antimony tartrate intravenously, it might be well to try this drug in actinomycosis.

Roy W. Hammack, M. D. (1003 Pacific Mutual Building, Los Angeles).—The study of the organism in this type of granuloma is interesting though often difficult. While in some cases the organism is readily cultivated by proper methods, in others repeated efforts have, in my experiences, failed. The possibility of this type of granuloma being caused by some other organism than *Actinomyces bovis* is borne out by two cases in my experience. One was clinically actinomycosis of the jaw. Granules were found in the pus from the sinuses and these resembled *Actinomyces.* However, the organism could be readily cultivated aërobically, as was repeatedly shown. Its appearance in cultures was different from that of *Actinomyces bovis,* but it was not definitely classified. Another was a granuloma of the abdominal wall with sinuses in which granules appeared. These granules were much larger than typical *Actinomyces* granules and were brown in color. Microscopically they resembled *Actinomyces,* but efforts to cultivate them failed.

The treatment of these infections is always unsatisfactory and tries the patience of both patient and physician. The use of foreign protein therapy is new to me, but since the results in the case reported were so gratifying I believe it is worthy of further trial.

RECONSTRUCTION OF LONG BONES*

By Harlan Shoemaker, M. D.
Los Angeles

Discussion *by E. W. Cleary, M. D., San Francisco; Edgar L. Gilcreest, M. D., San Francisco.*

THE fundamental requirement of good orthopedics is perfect equilibrium. When the balance of the body is disturbed through shortening of the long bones of the legs, many compensatory rotations in the pelvis and spine must follow. Reconstruction of a long bone following accident accordingly becomes a matter of great importance to the individual, particularly if that person is within the first three decades of life. A number of factors are involved, and a number of conditions may exist which modify the method of procedure or alter the time of active interference. Multiple fractures, skin abrasions, and shock are chief among these.

I have divided the consideration of the reconstruction of the long bones into the immediate replacement after fracture and the reconstruction of all fractures or malunions.

IMMEDIATE REPLACEMENT

Immediate replacement of the fractured long bone could include that time up to three weeks following the injury, as the callus has not sufficiently set to be an obstacle, and the associated injuries to the soft tissues have nearly subsided. Extensive lacerations should delay an active attack upon a bone. An old compound fracture, however, should only be approached nine months after all sinuses have healed and all moisture, however slight, has disappeared.

Avoidance of Shock.—The overcoming of muscle and tendon contractures, rotation, angulation, overriding, nonunion, as well as changes in the blood vessels and nerves, are the principal factors that must be dealt with in order to avoid shock with a possible fatal termination.

Muscle and tendon contracture can best be overcome by flexion of the leg at the knee. Gravity at a time when the bone has solidified will greatly aid subsequent treatment to overcome these contractures, and with less pain and less discomfort than the forcible pressure of casts maintaining a strained though correct anatomical position.

Failure to correct rotation of the femur is inexcusable and frequently ridiculous if it were not so disabling. To see a bowlegged workman attempt to climb a ladder with an inwardly rotated malunited femur which throws the flexed knee into a genu valgum illustrates this point. The underlying factors come generally from setting the foot too straight in the cast with an accompanying outward rotation of the upper fragment of the femur.

Angulation is one of the least disturbing factors in union of the femur, and certainly one of the most frequent. If lateral or anterior, the deformity has been accompanied by rupture of the soft tissues in these directions. If the angulation is posterior or inward, and particularly if near the knee-joint, it must be corrected. Pads, wedges and alteration of the case alignment or braces are all useful methods to combat this complication.

Overriding of the long bones should always be corrected. This is most essential in the young. The tiring effect of a waddling gait extends throughout every joint in the body and is evidenced by the lurch of the torso and head.

Open Reduction.—If skin traction fails to reduce an overlapping fracture within three weeks, or manipulation under the fluoroscope with moderately forced traction fails to engage a bone, then open reduction is justifiable.

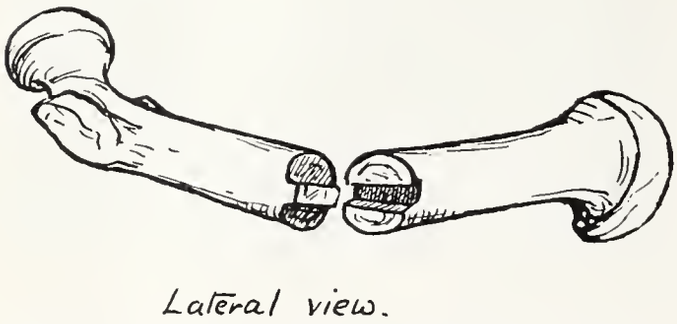
RECONSTRUCTION OF MALUNIONS

Nonunions are occasionally met with. They are generally encountered when multiple fractures accompany the injury or where serious compounding has occurred. Lack of coöperation of the patient plays a very small part except possibly as regards irregularities in diet with the tendency to overindulge in carbohydrates, particularly the sugars, and failure to take sufficient vitamins in fresh vegetables, fruits, and fruit juices.

Internal fixation may be produced by a foreign body, grafts or plastic work. When muscle tension, angulation or obliquity of the fracture are

* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

Illustration shows angulation of femur and flexion of the knee to facilitate reduction, without traction on the vessels or nerves. Note absence of traction, the foot being held by an assistant.



Showing facets cut to secure immobilization of long bone.

encountered, an internal fixation by a foreign body may be acceptable.

A bone graft is a necessity often added to the mechanics of correcting an obvious deformity. A well-cut bone graft will frequently firmly hold a bone and produce the desired permanent union. Exuberant callus occasionally will follow this procedure.

Plastic work on the ends of the severed femur has been most satisfactory in my own practice. The bone should be so cut by the saw or chisel that the roughest shaking will not disengage or alter the alignment. Further fixation is unnecessary and only the soft tissues and skin need be closed with plain zero catgut.

The facets cut upon the bone do not necessarily need to shorten the bone, neither is it necessary that they follow any preconceived plan.

After the soft tissues are closed and dressed, a cast from the opposite knee to the foot on the injured leg is applied. The cast is supported by a truss between the thighs, giving it a shape similar to a capital A with one long leg. The walking Thomas splint is adjusted after the tenth week, regardless of the condition of the union, and then the patient is gotten into an ambulatory condition as soon as the myocardium permits. When the knee-joint is injured simultaneously with the femur, a brace is adapted into the cast and early passive motion begun on the injured knee.

In the femur there are two safe avenues of approach. My first selection would be beneath the intermuscular septum on the external surface of the thigh. Here neither muscles, nerves or blood vessels interfere with a rapid exposure of the bone.

The second choice is through the intermuscular septum on the inner aspect of the thigh. The incision is carried down to the bone between the adductor longus and magnus internally and the internal head of the quadriceps extensor femoris muscle. The great vessels and the obturator nerve lie to the mesial side of the leg and must not be injured when the bone is exposed. Neither should the extensor quadriceps muscle or anterior femoral nerve be injured if full extension of the leg is to be maintained.

Undue stretching of the blood vessels and nerves is undoubtedly the chief cause of shock and death. *Metatarsalgia* is a condition that may develop in the foot of not so grave a nature to the patient as it is troublesome and prolonged, and which has its origin in the stretched nerve. It may be a terminal reaction from too rough handling or too prolonged or sudden tension upon the sciatic nerve. James B. Mennell, M. D., of St. Thomas' Hospital, says: "No thoughtful worker in the massage department of a military hospital can fail to notice one blot that remains in our treatment of gunshot wounds of bones. The structural repair of the bone itself is, generally speaking, incomparably better now than it was in the early stages of the war. But our patients are likely to return us small thanks, if, while we restore length and form to a femur, we doom them to the curse of a hallux rigidus or metatarsalgia. Almost better is a shortened leg and painless foot than a perfect leg and a foot that will never again carry its owner any distance without pain."

The avoidance of shock during these manipulations is best accomplished by undue traction upon the vessels or nerves. During manipulation of the overlapping bone by a "jackknife" procedure, one assistant holds the leg flexed at the knee and free from tension at all times. The assistant holding the leg can aid the operator materially if it becomes necessary to drag the femur out of its bed in order to cut dovetails into the bone that will hold it fast when set.

With the jackknifing of the ends of the femur and the flexion of the leg at the knee-joint lies the success of a rapid reduction of a fracture without shock.

1930 Wilshire Boulevard.

DISCUSSION

E. W. Cleary, M. D. (177 Post Street, San Francisco).—Doctor Shoemaker's paper is timely. We cannot have too much discussion of this important subject. As the World War experience recedes, one notes a tendency to forget some of its dearly bought lessons.

In the dregs of the great battlefields men saw this reconstruction problem as they had not seen it before.

A hundred, five hundred, a thousand maimed men seen en masse forcibly demanded the elimination of carelessness and mishandling and the institution of better methods and higher standards.

Splint standardization, immobilization at the earliest practical moment, skeletal traction, traction-suspension in frames of the Balkan type prevented countless deformities and saved hundreds of lives.

These methods were widely applied to industrial injuries after the war, and with similar good results. Then began an insidious, but no less dangerous drift back toward obsolete prewar methods. The human wreckage of civil industry is not disclosed en masse as was the human wreckage of war. The newer and better methods are a far greater tax upon the time and ability of the surgeon. Their application usually costs more in primary and obvious expense than do perfunctory and obsolete methods. The salvage value of high standard reconstruction surgery is often obscured when the price of life and limb is set as low as present custom tends to place it in industrial workers.

Doctor Shoemaker has clearly pointed out that shortening, angulation, malunion and stiff joints must be avoided. He has warned us against shock and hemorrhage, and has stressed the value of efficient early manipulative reduction. One could wish that space had permitted him to speak in some detail of modern methods of splinting, skeletal traction and suspension which, if efficiently applied, go so far toward avoiding disasters and toward facilitating reconstruction of fractured long bones.

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Edgar L. Gilcreest, M. D. (384 Post Street, San Francisco).—I wish Doctor Shoemaker might have emphasized more the importance of immediate replacement after fracture. Under this caption he arbitrarily includes that time from the day of injury up to three weeks. I believe that we should urge more and more very early reduction. In fact, I believe that we should teach our students that a fracture is an acute emergency. It is an erroneous and pernicious idea that one should wait until the swelling subsides before attempting reduction. Immediate or very early reduction often prevents much swelling. Repair does not go on indefinitely; sooner or later it ceases; therefore it must be conserved and not wasted.

In accomplishing these reductions Doctor Shoemaker has pointed out how to avoid shock. This should always be borne in mind. Frequently in fracture cases too little attention is paid to the trauma of the surrounding tissues. There is no simple fracture. Every fracture is accompanied by varying degrees of contusion and laceration and of hemorrhage into the adjacent structures.

The cause of unsatisfactory results in reconstruction of the long bones is that too little attention is still given to the consideration of the anatomy and physiology of the part. Since the popularization of the treatment of fractures by extension, exact reduction of the fracture has often been neglected. It is folly to sacrifice the attempt at primary reduction for other methods. Until good reposition has been obtained we should not be satisfied. I have in some cases made three or four attempts before proper reduction and alignment have been secured. As Doctor Shoemaker has so ably pointed out there are a number of fractures which do not permit primary reduction. These lie on the border line between fractures requiring conservative or nonoperative treatment and those requiring operative intervention. The methods pointed out by Doctor Shoemaker have been our allies for years. We should more frequently hesitate to leave the fields of tried and proved experience to go romping after the butterflies of untried methods in our desire for the new and more spectacular. Rather we should perfect ourselves in standardized methods.

SMALLPOX AND VACCINATION*

By Frederick Eberson, M. D.
San Francisco

Discussion *by J. L. Pomeroy, M. D., Los Angeles; Walter M. Dickie, M. D., San Francisco.*

MODE OF TRANSMISSION

SMALLPOX is a disease that spares no class of people. Its extent cannot be compared with that of typhoid fever, cholera, typhus fever, or tuberculosis, the prevalence of which is effectively lessened by improved methods of sanitation, for the exact mode by which smallpox is conveyed is not definitely understood. No one as yet has discovered the organism or other agent that may be responsible for the disease. For that matter, nobody knows what electricity is, but who cares to play with a live wire? However, it is commonly believed that the infective substance, or virus, as it is called, enters the nose or throat and from these places, through a local injury, enters the blood and causes a general infection of the system. There does not seem to be any doubt that the smallpox virus is contained in the lesions of the skin because direct contact is certain to spread the disease to other persons.

AN ANCIENT AND MODERN SCOURGE

Smallpox was at one time much more common and far more deadly in its ravages than it is now. There are two reasons for this fact. First, a new disease invariably wipes out the population whenever it finds a virgin soil. The scourge travels along like flames that lick dry timber in a burning forest. Second, methods of prevention and treatment of the disease are known today that were unknown in the past.

Introduced into the New World by the Spaniards about fifteen years after the discovery of America, within a short time smallpox had claimed about three and a half million persons in Mexico. More than one-half of the twelve million American Indians were stricken. Later, in the year 1707, almost 40 per cent of the total population of Iceland perished to the number of twenty thousand.

In more recent times, during the years 1893 to 1897, almost four hundred thousand persons died of the disease in sixteen countries and of this number Russia alone lost over 275,000. For many years China had been swept by smallpox and enormous populations wiped out, but today the disease is no longer so deadly, since the pock-marked and disfigured faces of the natives bear witness to the fact that nearly everyone has had the disease and is therefore now immune to another attack. All the previous waste of human life seems the more terrible in view of the simple preventive measure given to us by modern science.

DISCOVERY OF VACCINATION

The prevention of smallpox depends chiefly upon vaccination. It was one of the first weapons

* From the Department of Medicine, University of California Medical School.
* Radio lecture, KFRC, November 5, 1928, sponsored by the University of California Medical School.

given to man in his fight against disease and is therefore of unusual historical interest. Vaccination by the use of material taken from actual cases of smallpox was known to ancient China, whence the Turks introduced the custom into their own country. One might almost say that taking smallpox as a precaution against the disease became in Turkey a form of diversion as pleasant as the waters of health baths in other countries.

Lady Mary Montague.—Early in the eighteenth century Lady Mary Montague, who was living in Turkey, wrote home to England about this practice and had her daughter vaccinated. The idea spread and vaccination soon became popular in Great Britain. Of course this method had its obvious dangers and disadvantages, but it was not until seventy-five years later that science found a better way.

Edward Jenner.—The world gives credit in modern times to Dr. Edward Jenner of England for this wonderful discovery, evolved after careful scientific and logical methods of experiment. He demonstrated the mechanism whereby cowpox, a disease of the cow, can be transferred to humans and the mild form of infection thus produced is in turn capable of warding off the serious smallpox which is a human disease. Despite vigorous opposition on the part of those who take pleasure in obstructing new ideas, he succeeded in winning governmental support and numerous adherents, thus making it possible for him to put his discovery to a thorough practical test.

The first human being to be vaccinated by Jenner was his own eighteen months old son, an evidence of implicit faith in his own discovery. It was in the same year, 1796, that this young country doctor transferred the cowpox material from the hands of a dairymaid to an eight-year-old boy, who, when subsequently inoculated with virulent material taken from a smallpox pustule, remained well. Thus vaccination came to be known as such from the Latin word "vacca" for cow. How this idea of vaccination developed in Jenner's mind is of some interest.

Simon Jesty.—It was a tradition of the countryside that cowpox protected against smallpox. Persons that did the milking on the farms often contracted the disease from the cow's udders and developed pustules on the hands and arms. These persons were considered lucky because the village folk always said, "If you've had cowpox you can't catch smallpox." This thought was so strongly ingrained that a farmer of Devonshire named Simon Jesty determined to give cowpox to his wife and sons as a protection against smallpox. This was in 1774, twenty-four years before the publication of Jenner's work.

Jenner supposedly knew nothing of Jesty's experiment, but was familiar with the general tradition regarding smallpox and cowpox. A simple country practitioner, Jenner, after settling down to the humdrum life at Berkeley, where he lived, devoted his attention to the study of this terrible disease that had carried off all but one thousand of a population of fifteen thousand persons in a nearby town only a few years before. As is usually the case, Jenner was not honored in his own country until the outside world had already recognized his achievements, and it was not until 1802 that the British Parliament voted him $40,000 in appreciation of his discovery, and in 1806 voted him a further grant of $100,000.

In passing, one is tempted to call attention to the munificence of these grants, in contrast to the indifference of the American Congress to Reed and his co-martyrs, who, through their discoveries, relieved the Western Hemisphere of the yellow fever peril.

BENEFITS OF VACCINATION

What is the use of vaccination, some may ask? There has always been a prejudice against this procedure because of general lack of knowledge concerning the great benefits to be derived from the simple preventive measure. Vaccination confers an immunity or resistance to the smallpox virus. Within eight or nine days this immunity develops in the body and is retained thereafter for a period of about seven years, after which the individual loses this resistance and becomes again susceptible to the disease, even though the disease under such conditions usually attacks the human host in much milder form. The protection insured by vaccination may be made continuous and more certain by taking the treatment every five years.

The idea of vaccination is simple and devoid of mystery. Does it not seem reasonable to imitate with a mild and harmless form of disease a bodily condition that will normally result only if one has been lucky enough to survive a dangerous infection? For it is only when we recover from smallpox that we are guaranteed freedom from other attacks. Why should one take the risk of succumbing to a horrible disease in order to profit by the immunity that recovery confers when it is possible to win such immunity by artificial means without danger and without disfiguration?

The risk attending vaccination has been grossly exaggerated by antivaccinationists and their supporters. Vaccination is not dangerous. Cleanliness prevents any complications, and the danger from the vaccine itself is a bugaboo that misinformed medical quacks have set up to frighten the public. The methods of vaccination in use today are certain and safe, and even a sore arm is a rare occurrence if the site of inoculation is kept clean and the arm rested from unduly severe movements. The benefits to be derived from vaccination are so great that any possible danger, even if it did exist, would be well compensated.

VACCINATION AND THE COMMUNITY

Vaccination gives the individual protection against smallpox and at the same time affords an almost perfect protection to the community. To remain unvaccinated is to deprive the community of the protection due it. In countries where vaccination is compulsory the number of cases of smallpox and deaths from the disease have been remarkably low as compared with those countries

where vaccination is neither compulsory nor practiced voluntarily to any extent.

STATISTICS

One might give endless lists of figures showing plainly what vaccination has done to prevent disease and death.

Germany.—In Germany since 1874, when vaccination and revaccination were made compulsory by law, there had been only two deaths from smallpox in the huge German Army up to the year 1916. From the years 1901 to 1910 in Germany there were only 380 deaths from smallpox, and during the same period in England and Wales, with a population half the size of Germany's, there were 4300 deaths. More recent figures show that Germany, resuming her vaccination campaign after the Great War, reduced the number of smallpox cases from 688 in the year 1921, to 215 in 1922, and to 17 in 1923.

Other Countries.—If we compare conditions in certain countries during the period of 1886 to 1889, when smallpox was extremely prevalent, we find in Austria 11,000 deaths, in Italy 16,000, in Spain 11,000, and in Russia 21,000. Scotland at this time, with compulsory vaccination, had only twelve deaths or one in about 325,000 persons, and in 1923 only three cases were reported.

Soviet Russia.—Today Soviet Russia has less smallpox than the United States! In 1919, when vaccination became compulsory, there were 169,500 cases of smallpox, two years later 68,500 cases, and after the fifth year, 31,000 cases.

Hawaii.—Hawaii, with compulsory vaccination and despite its situation at the crossroads of the East, has had but fourteen cases of smallpox in the past eleven years.

Boston.—In our own country we have ample evidence of a similar kind to show how vaccination prevents smallpox and lessens mortality. Boston had a serious epidemic in 1872 with 3722 cases of smallpox and 1040 deaths. Two years later compulsory vaccination of children entering school was enforced and smallpox became so rare that the majority of physicians now living in Boston have never seen a case.

New York State and New York City.—The best example of what vaccination will do is found in New York State. In 1923, among 7,200,000 persons living in the crowded districts where children must be vaccinated before entering school, there were 668 cases of smallpox. Among 3,185,000 persons living in the small towns and rural districts where laws for compulsory vaccination did not exist, the number of cases was 3080, or more than twelve times as many per capita of population. Incidentally, in New York City there has not been a death from smallpox for the past fourteen years.

EFFECTS OF NEGLECT

Kansas City.—Let us now consider the other side of the picture. Only a few years ago, in Kansas City, where vaccination was not practiced because certain antivaccination societies had exerted a powerful and baneful influence, an epidemic of smallpox occurred and virtually every case had a fatal result. The explanation is simple. The disease had never been common in that locality. There was no natural immunity due to recovery from the disease, nor had artificial immunity been obtained through vaccination. The disease, therefore, found a new and virgin territory with highly susceptible people and the consequence was a high mortality. This might have been avoided had the parents listened to reason and common sense and not paid so much attention to prejudiced antivaccination propagandists.

Philippine Islands.—Before the Americans occupied the Philippine Islands, toward the close of the last century, the known deaths from smallpox ranged from forty to fifty thousand a year. Following a vaccination campaign, the death rate was reduced to between seven and eight hundred a year. These deaths usually occurred among babies and could generally be traced to the neglect of native municipal officers. This was sufficient proof of the value of vaccination, but in 1918 an epidemic of smallpox broke out with 47,000 cases and 16,000 deaths. In Manila, the capital of the Islands, more than 60 per cent of the population were stricken.

The objectors to vaccination thought they had damning proof against it, but an investigation revealed the true situation. It was found that the American health officers had for some years been replaced by native officers who were guilty of neglect. They threw away the vaccine viruses and made false reports on the number of cases vaccinated. In one instance the report of an ambitious native officer showed that he had vaccinated fifty thousand more people than the whole population of the province! Further investigation made the case for vaccination much stronger because 93 per cent of the people that died had never been vaccinated and 90 per cent of the cases occurred in children that had been born since the natives took over the duties of vaccination. When the results of the investigation became known, the Americans started another health campaign and smallpox has since been a rare disease in the Philippines.

California.—The situation in California should not give us cause to advertise what has been taking place. At one time there was a law in California requiring vaccination of children before they could attend school, but in 1911 the antivaccinationists succeeded in having the law changed so as to permit conscientious objection. As a result, 80 per cent of the children in some communities are unvaccinated. In 1923 this law had all its teeth pulled and the people of California, as Doctor Kellogg of the University of California has said, were given the privilege of enjoying all the smallpox they wanted.

Because of this laxity, smallpox in California is becoming alarmingly prevalent among children. Figures from the State Board of Health show that from 1912 to 1916 the cases of smallpox in California averaged 511 a year, from 1917 to

1921, 2683, and from 1921 to 1926, 4263 a year. The average annual deaths in the same periods were 9.4, 9.8, and 74. In 1924 there were 56 deaths among 10,000 cases. In 1926 there were 236 deaths among 2700 cases. In 1927 there were 984 cases with five deaths and for nine months of this year 911 cases with one death.

Great Britain.—Similarly in Great Britain we see the effects of such laws as exist in California. In keeping with the results of conscientious objection to vaccination in Great Britain, smallpox has increased tenfold between the years 1917 and 1924 as compared with the years 1910 to 1917. There were 847 cases in the first period and 8251 in the second.

DANGER IN DELAY

The horrors of smallpox with its terrible pustules covering the body, the puffy eyes closed by festering masses, the blindness that frequently results, the permanent disfiguration when death does not occur—all these things are too well known to require further comment. The appeal to common sense is all that should be necessary. Vaccination against smallpox is the best safeguard for your children, yourselves, and the community. Very often parents are simply careless and negligent and put off vaccination from day to day. It may be too late. Delay is dangerous. Children should be vaccinated early; the vaccination should not be postponed until the the children are ready to enter the schools.

It is essential that little or no heed be given by parents to the advice of neighbors on medical subjects. There are physicians who are better qualified to give advice. Any doctor, however, who tells you that vaccination is unnecessary or dangerous, might be termed hopelessly behind the times and is in the unfortunate position where he is unable to present reliable and scientific facts to warrant such an opinion. Up-to-date scientific medicine teaches prevention, and prevention is as important as cure. In few diseases is this more true than with that dread and disfiguring scourge, known as smallpox.

University of California Medical School.

DISCUSSION

J. L. Pomeroy, M. D. (330 North Broadway, Los Angeles).—It is true that the people of California are subject to constant danger from smallpox. It is a question of considerable moment, however, as to what can be done about it. Personally I believe that compulsory methods are not possible to secure in this state. As a result we must fall back on a constant educational campaign. In this respect the medical profession itself is not doing very much. If every physician in the State of California would urge vaccination on all of his clientele and especially the newborn children before the end of their first year, we should scarcely need to worry about the situation. The conscientious objector would be about the only person susceptible and would get his due reward. The facts are, however, that very few physicians are really practicing preventive medicine and even during an epidemic many of the physicians object to the wholesale vaccination carried out as an emergency measure by the health departments.

Such papers as this should serve as a reminder to the medical profession in general to do everything possible in their own field and toward the education of those susceptible of education and let nature take care of the rest.

Walter M. Dickie, M. D. (State Building, San Francisco).—It is true that more cases of virulent smallpox have been found in California since the repeal of the Vaccination Act, but it is believed that this is due to the importation of virulent strains from Mexico and the Orient as well as to the decreased number of immunized individuals within the state. Vaccination against smallpox is the oldest efficient weapon in preventive medicine, and its virtues are as well known and have been preached as consistently as have those of any other procedure in public health administration. It would seem that vaccination is available for all who may desire to take advantage of the safeguard that it provides. Parents and physicians have definite responsibilities in making certain that their children and patients, respectively, are vaccinated successfully. Health authorities have the undoubted right to take drastic action in the control of epidemics of smallpox, but when epidemics are not present the responsibility for securing protection against this disease rests upon the individuals concerned far more heavily than it does upon health officials.

THE UNTOWARD EFFECTS OF PROTEIN THERAPY IN OPHTHALMIC PRACTICE*

By M. N. Beigelman, M. D.
Los Angeles

Discussion *by Otto Barkan, M. D., San Francisco; George Piness, M. D., Los Angeles; A. Ray Irwine, M. D., Los Angeles.*

Primum sit non nocere.

HARDLY any other therapeutic method has attracted as much attention in the last decade as the nonspecific protein injections or the so-called "milk" therapy. The undoubted beneficial results of this treatment in various fields of medicine and the theoretic importance of the subject in regard to modern immunology stimulated a great deal of work—clinical, as well as experimental. Still a number of problems concerning the action of proteins, the dosage, the intervals, the indications and contraindications remain unsettled.

The object of this paper is to present certain facts and considerations in regard to one of these problems—the untoward effects of protein therapy and the methods of their prevention.

The voluminous literature on the use of foreign proteins in ophthalmic practice presents a striking variety in the complications arising from protein treatment. While some authors report large series of cases without mentioning a single untoward occurrence, others stress serious general

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or focal reactions and advocate the necessity of certain precautions. The difference of opinion is due not only to the selection of cases, to the variations in the chemical composition of the proteins used or to the mode of injection, but also to the degree of thoroughness and of critical attitude in the work done by various authors.

My personal experience with protein therapy in eye diseases extends over a period of eight years. On the Continent, shortly after Müller's announcement, the milk injections had been taken up by the Eye Hospital of the University of Don and were conducted on a rather large experimental scale, so that in 1920 fifteen hundred cases had already been reported by Doctor Askinasi.[2] The work with proteins I did in this hospital in the years 1920, 1921, and 1922. I continued later in the University of Kieff, as well as during the last three years of my private and clinic work in Los Angeles.

For the sake of convenience, complications in the use of protein injections will be discussed under three headings: local, at the site of the injection; general or systemic; and focal, at the site of the eye lesion. It will be proved later that there is an intimate relationship between the last two groups.

Local.—The *local reaction* in the form of infiltrations, abscesses or hematomata are of the same nature as in other intramuscular injections and are usually the result of a faulty technique. Strict asepsis and avoidance of areas of large blood vessels will completely eliminate these unpleasant occurrences.

General.—Much more serious are the *general reactions* which at times follow the parenteral use of proteins. The immediate toxic effect of a protein injection resulting in a temporary dyspnea or in a sudden fall of blood pressure, very rarely reaches an alarming height. In the unfortunate experience of Darier[3] a severe respiratory and cardiovascular depression followed an intramuscular injection of milk in the treatment of a hypopyon-keratitis, and the patient died twenty hours after the injection. The extreme rarity of these instances makes them rather accidental, and any conclusion as to their cause or prevention is hardly justifiable.

The possibility of true anaphylaxis which is well known in the use of horse serum has been disputed by many authors in regard to milk, caseosan, and similar products. Zill,[4] Zimmer,[5] Rolly,[6] and others presented large series of cases treated by various proteins without a single anaphylactic reaction. On the other hand, not only have Uhlenhut and Weichard[7] produced anaphylactic phenomena in animals by reinjecting milk and caseosan, but there is ample clinical evidence of a similar character. Ziemann,[8] Randenborg,[9] Jocqs,[10] Darier,[11] and particularly Büttner[12] in his work on "Anaphylaxis in Protein Therapy," reported numerous occasions on which "protein" injections, well tolerated at first, were followed by anaphylactic reactions when repeated after the elapse of an incubation period.

The following case report illustrates the types of reaction which must be considered as anaphylactic:

> A patient with a gonorrheal iritis who gave a history of "vaccine" treatments in the past, developed an urticaria following an intramuscular injection of five cubic centimeters of milk. Three months later there was a relapse of the iritis. This time, since the patient was obviously in a hypersensitive state, the desensitization method of Besredka was used, and one-fourth cubic centimeter of aolan was given intramuscularly an hour before the full dose (ten cubic centimeters). A few minutes after the injection of the full dose the patient became cyanotic, breathed with difficulty, and presented in general a picture of extreme anxiety and depression. This condition gradually subsided after lasting nearly an hour.

One can see from the details of the case that the desensitization by Besredka's method is by no means complete, and Weil's warning in regard to the difference between laboratory experiments and clinical medicine stands true.

On the other hand the reported case was the only one in our experience, when Besredka's desensitization method failed. Since the protein therapy does not prevent recurrence of the diseased condition we had many occasions to use milk injections at more or less long intervals, and we find the preliminary introduction of a small dose of protein affords a reasonable degree of safety. Whether any desensitization method should be used at all must be decided, in our opinion, in every individual case on the basis of the allergic history. We do not feel that the danger of anaphylaxis in protein therapy is frequent and serious enough to justify "sensitization" tests in each case, as advocated by Benedict[13] of the Mayo Clinic.

In combating anaphylactic shock, adrenalin remains the treatment of choice, its efficiency being due to a prompt rise of blood pressure, to a relaxation of the bronchial muscles, and to a delay in absorption.

Focal.—Proteins introduced parenterally call forth not only specific but also a number of nonspecific alterations in the reactivity of the body, and the consequences of these changes are not always beneficial to the focal lesion.

It is the belief of the majority of investigators that protein therapy works largely through the stimulation of body cells, and that it is essentially what German authors call "reiztherapie" (irritation therapy). But any stimulation can be effective only when a certain amount of potential healing power is present in the diseased body. If a system is exhausted by disease, age, or malnutrition to such a degree that no active response is possible, then stimuli are liable to do harm rather than good.

This point, which is emphasized by Petersen[14] and Wick,[15] is well supported by observations we

have made in the treatment of keratomalacia during the famine in eastern Europe in the early part of this decade. The corneal degeneration in patients exhausted from starvation was undoubtedly progressing from bad to worse under milk injections. Every one of these injections, which, by the way, did not produce any appreciable general reaction, was followed by prompt destruction of the cornea.

Another danger of focal disturbances induced by milk injections exists in the treatment of corneal herpes. In a case of a quiescent herpetic keratitis, where I injected aolan expecting it to relieve a persistent photophobia, a sudden flare-up of the herpes followed. A case similar to this has been published by Velhagen, Jr.,[16] in 1926; Le Roux,[17] Morax,[18] and others have long ago observed the recurrence of herpes caused by typhus vaccination, and as a whole the provocation of herpes relapses by protein injections stands in modern immunology as a well-established fact (Doerr).[19] The exact explanation of this interesting fact requires a more definite understanding of the pathogenesis of herpes than the one we possess at present. It seems that the unusual interest displayed in the last few years by research workers in regard to herpes has rather complicated matters, since the results of the investigations are widely varying and the conclusions are often contradictory. Best founded is the opinion of Bastai and Busacca,[20] that protein injections can mobilize the herpes virus, which has remained latent in the blood, and precipitate a relapse in the sensitized area.

The larger field for future study is the character of the usual histological changes taking place in the diseased foci immediately following protein injections. From what has been done along this line we know that the focal reaction is of the same diphasic type as the general reaction. The first phase is an exacerbation of the process with increased congestion and exudation; the second phase, a decrease of the inflammatory signs. Schmidt correctly compares the process with a pendulum which, when brought out of its equilibrium, swings first in one and then in the opposite direction.

The first period in the focal reaction is of short duration and is therefore usually overlooked when the patient is seen at an interval of one or two days.

Tobias [21] who, on a series of eye cases, did the painstaking work of early and repeated examinations, after protein injections, described these focal changes in detail. The increase of infiltration area in corneal lesions or of the exudate in a plastic iritis, preceding the second phase of clinical improvement, stand out clearly. In the light of these observations the possibility of certain dangers is evident. When a corneal ulceration has progressed until there is little tissue left at the bottom of the ulcer, the first phase of the focal reaction is likely to facilitate the perforation with its disastrous results. Holler [22] was probably right when he complained that in deep corneal ulcers milk injections precipitated the perforation.

As to the uvea, the untoward effects of proteins have been recently mentioned in a general way by Benedict, who states that "a chronic iritis with a narrow pupil and posterior adhesions can be made worse by injections of proteins." I met with two attacks of secondary glaucoma following the use of protein in a uveitis. In both cases an increased intra-ocular tension preëxisted and was probably made worse by the first phase of the focal reaction—the increased exudation.

May I state, in conclusion, that the facts and considerations I have presented today do not tend to discredit the value of protein injections. On the contrary, a clearer understanding of the possible dangers and contraindications to its use will add to the safety and to the wider application of this valuable therapeutic method.

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DISCUSSION

Otto Barkan, M. D. (490 Post Street, San Francisco).—Doctor Beigelman has covered the subject in such a concise manner that but little remains to be said. One might add that hemoptysis and hematemesis have been reported following milk injections. We have observed one such alarming case, although this

may have been a coincidental hemorrhage from an esophageal varix and not from the milk injection.

This paper reminds us to bear in mind the potential dangers of protein therapy, and that its administration must be accompanied by due care and judgment.

✲

George Piness, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Beigelman has discussed the subject in a very conservative and careful manner. His discussion of the complications that may attend the use of milk therapy is thorough with the exception that he fails to discuss or impress the fact that severe anaphylactic shock or even death may follow its use in individuals sensitive to milk. I would suggest that every individual treated by this form of therapy be first tested to milk, particularly those who give a history of having had some form of allergic disease or a family history of the same. The cases reported by the author in which untoward symptoms occurred could have been avoided if the above suggestions had been followed; and the use of adrenalin when it does occur would also prevent severe shock and possible death.

The subject, on the whole, is covered very thoroughly insofar as the treatment of eye conditions is concerned and, no doubt, is of great value, but the author fails to mention the fact of its possible value in other conditions such as arthritis and asthma.

✲

A. Ray Irvine, M. D. (1142 Roosevelt Building, Los Angeles).—The great value of this type of therapy in ophthalmic practice is the fact that at the site of the lesion, the eye, we get a focal reaction after injection of foreign protein. If, due to any cause, there is a great general depression following foreign protein injection, is it not reasonable to believe there would be a lessened resistance at the site of the focal condition? Another danger which should be stressed is that the first phase of reaction due to an injection may accentuate the disease process at the site of the focal infection, as was shown in cases of keratomalacia, deep keratitis, and certain forms of uveitis, brought to our attention by Benedict. In my own experience a deep gonorrheal corneal ulcer promptly perforated after a milk injection.

The study of allergic conditions, the desensitization of patients, and the careful selection of patients upon whom to use foreign proteins will pretty well safeguard us from untoward complications.

✲

Doctor Beigelman (Closing).—Anaphylactic complications in the course of protein treatments are comparatively rare. It is possible indeed to perform hundreds of milk injections and not to encounter a single instance of true anaphylaxis. The allergic complications, when they do occur, are usually of a mild type and can be traced back to some kind of hypersensitiveness in the past. It seems that under these circumstances sensitization tests are hardly justified as a general requirement of protein therapy, and that they are indicated only in the presence of a positive allergic history. However, the final word in this matter can be left to the allergist who, through his special knowledge and experience in the parenteral use of proteins, is best equipped for the handling of nonspecific agents.

I feel, with Doctor Irvine, that the field where the ophthalmologist is called upon to do his share of scientific observation is the focal reactions—at the site of the eye lesion. We must remember that we are still in the experimental stage of the nonspecific therapy, and that only a careful registration of both the beneficial and the untoward effects of it will help to establish the proper indications and contraindications.

SPONTANEOUS HEMATOMA OF THE ABDOMINAL WALL IN WOMEN*

REPORT OF CASES

By Alice F. Maxwell, M. D.

San Francisco

Discussion *by L. A. Emge, M. D., San Francisco; William B. Thompson, M. D., Los Angeles.*

HEMATOMA of the abdominal wall may result from trauma or may occur spontaneously. The former is relatively frequent and the etiologic factor is usually apparent. The infrequency of spontaneous rupture of the blood vessels of the abdominal wall, the severity of the attendant symptoms, and the difficulties of diagnosis, justify the recording of the following case:

Mrs. R., aet. 35, was admitted to the obstetrical department of the University of California Hospital in the sixth month of her seventh pregnancy complaining of acute abdominal pain. The patient had had a severe cold for about one week. During a paroxysm of coughing while sitting on a couch, she felt a sudden sharp tearing pain in the lower left abdomen and an exquisitely tender swelling soon appeared and steadily increased in size. The patient was brought to the hospital in an ambulance within two hours after the onset of the attack. Examination showed a well-developed woman in acute abdominal distress: temperature, 37; pulse, 100; respiration, 24. The heart was negative; the lungs showed normal resonance but with diffuse scattered râles. There was no evidence of arterial sclerosis. The abdomen on the left side from Poupart's ligament to the level of the umbilicus was distended by a tumor which was boardlike to palpation and extremely tender. The fundus of the uterus reached to the umbilicus and appeared to be pushed over to the right side of the abdomen. The uterine body could not be outlined on the left side because of the tenderness and resistance of the overlying tumor. Vaginal examination revealed no pathology, and there was no external bleeding. The fetal heart could not be heard. The preoperative diagnosis rested between a twisted ovarian cyst with hemorrhage or concealed hemorrhage from premature separation of the placenta. During the next three-fourths of an hour, while the operating room was being prepared, the mass on the left side steadily increased in size. Under nitrous oxid anesthesia the abdomen was opened by a midline incision. The skin and subcutaneous tissue were not discolored. When the left rectus sheath was incised, several handfuls of blood clots gushed out of the opening and a hematoma reaching from the level of the bladder almost to the rib margin and about eight centimeters to the left of the midline was found. The muscle fibers were ragged and split throughout their entire extent. The underlying peritoneum was ecchymotic, bulged into the abdominal cavity, was very friable and tore readily. Exploration of the peritoneal cavity was negative. The blood clots were removed, several oozing areas in the lower part of the left rectus were ligated; but the ruptured ends of the blood vessel could not be found. The abdomen was closed in layers and a small rubber drain was inserted. The convalescence was complicated by a flare-up of the respiratory infection and signs of pneumonia. The cough was controlled by morphin, and the abdominal wall was tightly bandaged. The woman was dis-

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charged as well within three weeks. The pregnancy went to term and she was delivered of a normal child four months later.

CASES IN THE LITERATURE, OF SPONTANEOUS HEMATOMA OF THE ABDOMINAL WALL

A review of the literature shows that spontaneous hematomata of the abdominal wall during pregnancy are rare. I can find only ten cases.

Case 1.—A woman, aet. 30, in the eighth month of pregnancy. Past history was negative. While in bed for severe cold, she experienced a sudden sharp pain in the right lower quadrant. Abdominal examination revealed a large tender mass in the right flank separate from the uterus; temperature, 101; pulse, 135; respiration, 30 to 36. Cough and dyspnea severe. The urine showed albumin and casts, and the patient appeared very ill. A diagnosis of hydronephrosis was made. The woman fell into premature labor within a few hours. Following delivery the tumor in the right flank was interpreted as an ovarian cyst with inflammatory reaction. Operation one week later showed a hematoma behind the right rectus muscle extending up to the rib margin. Recovery.

Case 2.—Para 3, aet. 30, in the sixth month of pregnancy, had had bronchitis with severe cough for several weeks and had noticed a dull pain in the right lower quadrant for three weeks which suddenly became very severe. A tender resistance developed in the right lower quadrant; twenty-four hours later, symptoms of ileus and marked anemia were present. A diagnosis of ruptured uterus was made. At operation a cavity seven inches long filled with coagulated blood was found in the right rectus muscle; the peritoneum had ruptured and there was considerable free blood in the abdominal cavity. This is the only case in which the hematoma had broken through into the peritoneal cavity.

Case 3.—A woman five months pregnant complained of general abdominal pain which, after three days, localized in the right side and back. Paroxysms of vomiting and frequent micturition occurred at intervals and lasted for three or four hours. A tender tumor, independent of the uterus, was palpated in the right flank. The urine showed albumin and casts. Hydronephrosis was suspected, but cystoscopic examination of the bladder and ureters was negative. At operation a large hematoma was discovered in the extraperitoneal connective tissue which had dissected up to the right flank. Recovery was uneventful and the woman went to term. Labor was spontaneous but the child was stillborn.

Case 4.—Para 4. When six months pregnant, patient developed a cold. During a paroxysm of coughing she felt a violent pain in the right hypochondrium. Within twenty-four hours a tumor appeared in this region; temperature was 38. A few hours later the membranes ruptured and a severe vaginal hemorrhage occurred. A dead child was delivered by version and extraction. The condition of the tumor did not change following labor. Therefore one week after delivery the swelling was incised, with the escape of a large mass of coagulated blood from an encysted hematoma in the abdominal wall. Recovery was uneventful.

Case 5.—A woman at term noticed a painful tumor develop suddenly, without any apparent reason, on the left side of the abdomen between the navel and symphysis. Operation showed a large hematoma in the rectus muscle. Recovery.

Case 6. Para 5. Eight days before the onset of labor, when coughing, noticed something tear in the right upper abdomen. A tumor appeared which slowly enlarged with coughing, and movement of the abdominal walls was exquisitely painful. A diagnosis of twin pregnancy was made, but after the spontaneous delivery of a full term normal child the swelling remained unchanged. Subsequent incision over the tumor revealed a pint of partly fluid, partly clotted, dark brown blood in the rectus muscle, the fibers of which were torn and slashed. The wound was drained. Recovery was uneventful.

Case 7.—A woman at term presented with symptoms of an acute abdominal crisis. The preoperative diagnosis was rupture of an extra-uterine pregnancy or torsion of large ovarian cyst. Operation disclosed a tremendous hematoma of the rectus muscle.

The following hematomata developed during labor.

Case 8.—Primipara, aet. 32, at term entered the hospital in labor. The patient had had a respiratory infection and a temperature of 38 although she had not coughed. Delivery was spontaneous, but during the expulsive stage of labor the conjunctivae became bloodshot. Immediately following labor the woman complained of a sharp pain immediately above the symphysis, and a tumor eight centimeters in width appeared at this point and extended almost to the umbilicus. The swelling was tender and hard to palpation. The bladder was catheterized without effect upon the size of the mass. The puerperium was febrile, but there were no symptoms suggesting infection of the breasts or pelvis. The tumor was continuously compressed for twenty days, with gradual diminution in the size of the mass but with no relief of the tenderness. One month after delivery bilateral thrombosis appeared in the legs, followed by chills and fever. Metastatic centers developed in the right knee and left middle ear. There was ultimate slow relief and recovery.

Case 9.—Para 2, aet. 21, within one hour after a normal delivery complained of a sharp pain above the symphysis, and two tumor masses, separate from the uterus, appeared extending from the pubis to the umbilicus. The overlying skin and fascia were freely movable. Ice-bags were applied, but one of the tumors steadily enlarged until the third day postpartum. Three weeks later the woman was discharged; the tumors were still apparent but had become smaller with absorbent treatment, and within six weeks had disappeared. The treatment was conservative because of the control of pain and the gradual diminution in size of the swellings after the third day of the puerperium.

Case 10.—Primipara with typhoid fever went into premature labor in the seventh month of pregnancy. During the third stage of labor a tumor appeared in the right rectus at the level of the umbilicus which increased to the size of a coconut within twenty-four hours. The skin over the swelling became discolored. The tumor was semisolid. The swelling slowly decreased in size and disappeared at the end of six weeks. The mode of onset, gradual absorption, and discoloration of the overlying skin definitely indicated a hematoma of the right rectus muscle.

POSTTRAUMATIC HEMATOMA REPORT OF AUTHOR'S CASE

The following case report, although the hematoma was posttraumatic and is not included in the list, presents symptoms of unusual interest:

Para 7, aet. 44, a short time before delivery struck herself on the right side of the abdomen. This was followed by pain and disability which disappeared within a few days. Occasional attacks of pain were noticed at intervals on the right side. After delivery, however, a distinct tumor appeared in the right lower quadrant and, within three months, ascites, edema of the leg and dyspnea developed. The abdomen was tapped six times. The tumor remained unaltered; vaginal examination was negative. A provisional diagnosis of generalized abdominal malignancy was made but at operation no intra-abdominal disease was present, but in the substance of the right rectus muscle

a large hematoma was found after the removal of which, the torn ends of the deep epigastric artery were found.

SUMMARY OF OTHER CASES IN THE LITERATURE

In addition to the reports of hematoma occurring in pregnancy, forty-six cases of spontaneous rupture of the abdominal blood vessels in women were found in the literature.

Age.—The youngest patient was twenty-eight, the oldest ninety-three years. The age of the individual apparently had no relation to the rupture, for the frequency was about equal in the various decades.

Predisposing Factors.—Four women had definite myocardial disease and were receiving digitalis. Vomiting was the exciting cause of the hematoma in two of these patients. Evidence of arteriosclerotic changes were noted in only four elderly patients. A large percentage of the women were very obese.

Exciting Causes.—There was no apparent etiologic cause for the rupture in seven women. In every other instance (thirty-nine cases) sudden muscular effort or strain preceded the lesion. Thus, coughing, sitting up suddenly, twisting the body, lifting, loss of balance, vomiting, walking, undressing, and golfing are mentioned as inducing the attack. The frequent association of respiratory infections and spontaneous rupture is of interest. Rupture of the blood vessels followed coughing in one-third of the cases.

Site of Occurrence.—The hematoma was found six times more often in the lower than in the upper abdomen and more frequently on the right than on the left side.

The large majority of the women were multipara. The size of the hematoma ranged from a goose egg, coconut, or child's head, to that of a tumor filling more than one-half of the abdomen.

Symptoms.—The onset of symptoms in every case was sudden. Severe abdominal pain was always present; at times the pain radiated to the back and legs. A palpable tender tumor was constantly noted. Shock, collapse and prostration of varying degrees were not infrequent. Dyspnea, distention, vomiting, rapid weak pulse, and chills and fever often pointed to peritonitis and intra-abdominal disease. Urinary and fecal suppression occurred occasionally.

SUMMARY

A review of the entire series of fifty-seven cases is of interest from the standpoint of errors of diagnosis. The underlying pathology was suspected in only nine patients, and in five of these the diagnosis was confirmed by operation; in the remaining four the treatment was expectant; the slow disappearance of the tumor under compresses and the appearance of ecchymosis in the skin of the abdominal wall suggested the absorption of a hematoma.

In forty-seven reports the diagnosis was incorrect, but the acute symptoms demanded immediate treatment and the actual lesion was recognized only at the time of operation. When the rupture occurred in the lower half of the abdomen the diagnosis of acute appendicitis or twisted ovarian cyst was frequently made; acute cholecystitis, renal calculus, and hydronephrosis were the usual preoperative diagnoses if the rupture occurred in the upper half of the abdomen. The severity of the symptoms and the variations of the clinical picture can be appreciated by an enumeration of some of the more common preoperative diagnoses, such as strangulated (omental, umbilical, inguinal) hernia, intestinal obstruction, mesenteric embolus, generalized abdominal malignancy, acute abdomen, malignancy of the sigmoid, twin pregnancy, ruptured uterus, and rupture of tubal pregnancy.

TREATMENT

The diagnosis having been established by laparotomy, evacuation of the hematoma, ligation of bleeding points and drainage were the usual procedures. When operation was delayed, liquefaction and secondary infection of the blood clots with staphylococci or colon bacilli demanded drainage. Absorbent measures were successfully carried out in only four of the fifty-seven cases. There were no deaths in the entire series.

University of California Medical School.

DISCUSSION

L. A. Emge, M. D., (2000 Van Ness Avenue, San Francisco).—Doctor Maxwell's well-organized paper covers the essentials of this interesting condition so well that there is little left to discuss. I have no doubt that so-called spontaneous hematomata of the abdominal wall in women are more frequent than reported. Only the very severe hemorrhages due to rupture of the muscular portion of the deep epigastric artery or vein cause alarm and are reported. I have seen two lesser hemorrhages of the rectus muscle after delivery during the past ten years, one in a patient of our women's clinic at Stanford Medical School, and another in consultation practice. Both occurred in the left rectus sheath and manifested themselves as fist-size tumors several days after delivery. Soreness was the only symptom. Both were treated conservatively with ice-packs and later emptied by a suction with a Luer syringe. Recovery was uneventful. In reality, none of these hemorrhages are spontaneous. In most instances violent muscular contraction precedes the hemorrhage. The injury comes from within and usually includes rupture of the muscle fibers immediately surrounding the blood vessel.

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William B. Thompson, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Maxwell is to be congratulated first upon discovering a patient with such a rare condition. It undoubtedly is true that, as in every other type of disorder, the bulk of occurrences are not recorded and are not available, therefore, for comparative study. Particularly is this true in the lesser degrees of injuries, whether spontaneous or traumatic. The condition she describes may be likened to charleyhorse in athletes, where a violent spasm of the muscles occurs because of the rupture of the few fibers. One readily imagines this process being extremely grave where blood vessels are torn apart by overviolent muscular action and by retraction of the torn ends where this involves a considerable portion of the muscle substance.

Since this condition is so unusual, Doctor Maxwell is to be congratulated more, I believe, upon the operative handling than upon the pure chance that the patient came under her care, in that the muscle was

so joined together that it withstood the strain of labor in term. One would be more inclined to expect poor union with tedious scar formation that might eventuate in a repetition of the injury when subjected to severe stress.

MATERNAL AND CHILD HYGIENE*

EDUCATIONAL ACTIVITIES OF THE LOS ANGELES COUNTY HEALTH DEPARTMENT THEREIN

By ELIZABETH M. SAPHRO, M. D.
Los Angeles

CHILD hygiene, as a term, formerly signified but two lines of endeavor: one, infant hygiene, especially infant feeding and the associated milk depots; and two, hygiene of the school child. These two activities were carried on with striking independence and indifference, one to the other, for a number of years. Finally there came the appreciation of the fact that the baby attending the milk station and the child later attending school was one and the same human being; also, an understanding that the final results obtained by either group in the effort to build for health depended to no small extent upon the physical condition of the child at the time the first constructive contact was made. The infant hygiene group turned to the obstetrician for aid, tritely stating, "Infant hygiene should begin nine months before the baby is born." Both the infant and school child groups simultaneously discovered the runabout or preschool child. So today we find prenatal, infant, preschool and school hygiene activities all thrown together in one interdependent group.

DEVELOPMENT OF THE DEPARTMENT ACTIVITIES

Primarily the various child hygiene activities were developed from the viewpoint of clinical medicine, and the first procedures to be standardized were modifications of clinical medical methods. Gradually principles of preventive medicine as well as curative medicine came to play a part in this field, and thus education, with health for its subject, became a factor in the work. The technique and context of an acceptable health education program have been given much study by the Los Angeles County Health Department, and this paper will discuss some of the ideas which have been used and developed by the health department.

The educational program provided by a child hygiene unit must be aimed to reach both the parent and the child. It should attract the interest of the parent, and in such a form that the information gained may be applied to all members of the family group. The child's interest must be obtained and the child must also be given the opportunity to practice over and over again the health precepts until these are thoroughly understood and have become a habitual reaction. In this training of the child the parent must be taken into our confidence. The coöperation of the parent in the home is invaluable in the establishment of any habit, and this coöperation will never be fully gained if we humiliate the home in the eyes of the child. Parents are surprisingly willing to change their ways of living if the reasons and the value of the changes suggested can be shown to them. On the other hand they become resentful and antagonistic when the child comes home and criticizes the home upon the basis of facts it has been taught elsewhere.

IMPORTANCE OF PERSONAL CONTACTS

In endeavoring to put over this joint parent and child educational program, our department has tried booklets, lectures, and other similar methods. While all of these methods have a value we do not feel that in the end they are of as much worth as the personal contact between the health department and the parent, preferably through the mother.

The mother waiting her turn to see the doctor at one of the child hygiene conferences seemed to present an ideal opportunity for constructive educational contact. But how to accomplish this contact proved to be a problem. Lectures, no matter how short and snappy, as well as demonstrations and movies, all fell short of producing the desired results. Why? Because the mother always seemed either to come in the middle of things or her turn to consult with the doctor came before the climax with its teaching point had been reached. Only half of the story was ever presented, and half-stories are either uninteresting and therefore a bore, or what is more serious, the source of misinformation. It is also to be remembered that a waiting room filled with babies and runabouts hardly is a sufficiently silent and orderly place for a speaker to be heard, to say nothing of the mother being able to concentrate sufficiently to grasp what is being presented. Some tiny tot is always upsetting itself and the chair in which it has been sitting, and must be comforted and silenced.

INCORPORATION OF HABIT TRAINING AS A ROUTINE PART OF THE CHILD HYGIENE CONFERENCES

Child guidance and habit training are today receiving considerable attention in all child welfare groups. We therefore decided to determine if we could make a real contribution, reaching both the child and the parent, and at a cost not prohibitive for a health department. (The average cost per child served in a child guidance clinic is $150.) To develop a preventive technique in habit training for the tiny child just as a preventive, physical technique has been developed. All to function as a single service in the various child hygiene conferences.

An excerpt from "Details of Methods Used," printed in the Los Angeles County Health Department News, for January 31, 1928, may be pertinent:

> An interesting program in health habit training is being conducted one day each week at three of the Los Angeles County health centers in connection with the child welfare conferences. This activity is sponsored jointly by the Los Angeles County Health De-

* Read before the Pediatrics Section of the California Medical Association at the Fifty-Seventh Annual Session, April 30 to May 3, 1928.

Fig. 1.—A group of runabouts busily working at a low table, in chairs of proper height. Each child has selected its own piece of work. Every article is planned to both develop muscle coördination and teach good habits.

Fig. 2.—A tiny tot playing with blocks.

partment and the Los Angeles County Public Health Association.

The objective is to afford an opportunity for the children to engage in happy and purposeful activities while awaiting their turn with their mothers for a conference with the child welfare physician. Instead of fretful, impatient children and tired mothers telling each other of "Johnny's latest ailment," creating an atmosphere of nervous tension and depression, the waiting room is converted into a playroom with both children and mothers entering into the spirit of happy relaxation.

The materials which are used are well known to all educators of young children. They comprise blocks, wooden beads, peg boards, drawing paper, crayons, toys, etc. These are used through play to unconsciously illustrate various health ideas and train little bodies in useful coördination of muscles.

The attention of the boy building a house is called to its ventilation and opportunity for sunshine. Has it windows? Does plenty of sunshine flood its rooms?

The little girl playing with the doll is reminded that she should lie straight; that her clothes must be hung up to be aired, and so on.

The spirit of play and the natural imagination of the children are thus utilized to teach health habits in normal child-life situations.

A right attitude toward good foods is stimulated by coloring pictures of bright red apples, oranges, vegetables of various kinds, bottle of milk, etc. The children paste these pictures into little covers upon which are printed such inscriptions as "Eat some fruit each day"; "Eat vegetables daily"; "Drink a quart of milk a day." These booklets are given the children to carry home. The inscriptions indirectly remind the mother of the foods the children need.

The habits of orderliness, neatness, courtesy, and obedience are encouraged, until they are becoming established as habits with many of the little visitors at the conferences "who count the days" until they can return to the conference.

Books and periodicals on child training are made accessible to the mothers during the conference period of waiting.

INTERPRETATION OF PHOTOGRAPHS

The word picture above given may be illustrated through some photographs:

Figure 1. A group of runabouts busily working at a low table, in chairs of a proper height. Each child has selected its own piece of work. Every article is planned to both develop muscle coördination and teach one or more good habits. At first the mothers thought we were merely amusing the children while they were waiting for their consultation with the doctor, but before long they grasped the motive underlying each procedure and began to bring to the conferences not only their physical troubles, but their temperamental troubles as well. The inexpensive instruction toys were copied or modified, and used in the homes. Please notice also that we have pictures with subject-matter appropriate to children which are placed low down upon the walls where the child may look at them in proper perspective.

Figure 2. A tiny tot playing with a box of blocks. On the floor have been placed washable rag rugs; thus the floor is made a safe, clean place for a baby to play. The blocks are much larger than the usual box of blocks for sale in stores, and are of many different sizes. The size of some is just right to fit a tiny baby's hand; others are larger and of shapes such that many different things may be created. The other day one little four-year-old spent the best part of an hour hunting out every block in the box of a given size and shape, an excellent training in shape perception and perseverance. Thus mothers learn that children like simple, useful toys which allow them to create and use their initiative and imagination rather than finished creations.

Figure 3. The same tiny tot playing with a large wooden animal toy. This toy is not too heavy for him to handle and is colored with a paint that can be washed and so kept clean, and also which will not come off in his mouth if he decides to put it there, which he probably will.

Figure 4. Hats and outer wraps must be removed and cared for. What can train a child better (and the parent as well) in neatness, orderliness of person and the proper airing for garments than the opportunity to use a rack that is not too high for him to reach, especially when each coat hanger is gaily painted. Try to throw a child's coat down just anywhere after he has once had a chance to hang it upon one of these gaily painted hangers. You probably will not succeed. At least the child will in some manner express its disapproval.

COMMENT

Habit training is only half of the teaching presented to the mothers at the child hygiene confer-

Fig. 3.—The same tiny tot playing with a large wooden animal toy.

Fig. 4.—A coat rack with individual gaily painted coat hangers.

ence. The mother often needs help in preparing the food ordered for her child. Personally I cannot blame many of the children for refusing to eat vegetables or other foods that are good for them when I see how they are prepared and served. Each week a nutritionist prepares a simple demonstration of either some particular food cooked in an unusual way (each mother is given a taste to see the dish is really palatable), or an acceptable day's menu for a child of say, six years of age is presented. The sincerity of the mother's questions is undeniable, but most obvious are the hazy ideas many of them evidence by their questions and remarks.*

Whenever the attending physician writes a new type of formula for the baby or prescribes a definite diet or change of diet for a runabout, these diet orders are given to the nutritionist, who explains them in detail to the mother. An aim is made never to give out these mimeographed articles except when their definite need is shown and even then, rarely is more than one given out at a time. A single piece of literature given to a mother at the time when the need for the information it contains is appreciated, and with a personal touch from some worker known and trusted by the mother, is a piece of literature read. A table full of literature, no matter how attractive and valuable, left for the mother to read or leave at her pleasure, is rarely utilized. The gay-colored booklets are given sometimes to the children to tear up. Occasionally a booklet is taken home with the intention of reading it, but careful questioning shows that rarely is the information in the booklet applied to the life of the family. Therefore we have abandoned the promiscuous distribution of literature and substituted short, clear-cut articles to be used as their specific need arises.

Both the child health guide—as we have titled our habit instructor—and the nutritionist have brought to them by the mothers many of the problems of the homes. Some of these problems must be handled by the doctor, others by the nurse. It is upon the nature of the problems presented that the material for subsequent conferences are based.

It is too early accurately to evaluate the results of this procedure, but the waiting rooms of our child hygiene conferences, instead of being filled with worn-out mothers and fretful children, are now filled with mothers who come early and stay late, and with children who really count the days until they can come again and play in our health centers. Problems in habit training are discussed and an endeavor is made to correct bad habits before they become fixed to handicap the child and become an annoyance to those around him. We feel that the prevention of undesirable habits is as much of a responsibility of a child hygiene division as is a proper diet. A healthy child must be healthy in both mind and body; neither one can carry on without the other. The pediatrist should guide both simultaneously. Therefore we have built our unit to consist of: first, a trained pediatrician; second, a public health nurse; third, a child health guide; and fourth, a nutritionist, all working in harmony for the complete welfare of the child.

Hall of Justice.

Fig. 5.—Demonstration of an acceptable day's menu for a child of six years of age. The food properly chosen, cooked and served. An explanatory mimeograph article accompanies demonstration.

* A series of mimeographed articles on such topics as: body-building foods; proteins; vitamin B; and iron foods has been prepared. Any reader who is interested can obtain copies by addressing the Los Angeles Health Department, Hall of Justice, Los Angeles.

INDUSTRIAL DISEASES AND THE PUBLIC HEALTH*

By William C. Hassler, M. D.
San Francisco

Discussion *by J. L. Pomeroy, M. D., Los Angeles; John J. Sippy, M. D., Stockton; Roscoe N. Gray, M. D., San Francisco.*

THE revolution brought about in the various industries in the early part of the nineteenth century was the beginning of many industrial hazards formerly unknown, this in the main being due to the substitution of steam for water power. In the latter part of that century the hazards associated with machinery having steam as a motive power were multiplied, because of the increasing use of electricity and gasoline.

Those inventions brought into existence new machinery; and so subdivided labor that women and children became a factor in many classes of industry not previously open to them. As time speeds on, with increasing world population, we may expect many more such changes to take place. The social environment of our day is surrounded not only by greater comforts and pleasures in every walk of life than at any period in history, but also by greater hazards to life and longevity.

Ours is an age of machinery, of synthetic products, including even those of food and drink, and of new poisons in the mechanical arts and sciences. All these have brought new stress upon the body tissues of human beings, and new strains on the vascular and nervous systems. In other words, the mind and the body are in a continuous struggle for supremacy over the factors that operate insidiously or acutely, to injure the body structures or alter their activities in such manner as to interfere with the full enjoyment of life and its normal span of existence.

The end-results of such factors, whether caused by toxic substances, deleterious environments in factory or workshop, or by hazard to life and limbs, are classified as occupational diseases or diseases of industry. For the most part the diseases of industry are preventable.

Daily experience, however, brings to light exceptions to this ideal in prophylaxis, particularly in the profession of medicine and nursing. For example, hospitals require that all medical interns, nurses, and other employees must have had immunity treatment for typhoid, scarlet fever, diphtheria, and smallpox. Before such hospital attendants are assigned to the communicable disease division, they are checked to determine whether such treatment has been undergone. Yet annually we have illness and deaths and resultant industrial claims to meet because the virulence of the type of smallpox, scarlet fever, or diphtheria was greater than the protection the prophylactic agents were able to establish.

Other exceptions to absolute prevention in industrial hazards could be quoted, and more than legislative enactments will be necessary to control absolutely such exceptions. In the future such exceptions will be reduced by proper education of the man or woman in industry, in personal, home, and factory hygiene, and in the specific hazards of occupations.

The moral and social influence which unions, workingmen's clubs, lodges, and benefit and insurance societies can wield in prophylactic education in industrial fields has never been appreciated.

The medical profession as a whole, and especially physicians engaged in the practice of industrial medicine, must play a more definite rôle in educating the workmen and the public. The influence of the family doctor is very great in America, and if all family physicians did their full part in this work they would accomplish more than any lay commission. Not that we would expect the members of the medical profession to eliminate or replace these various lay societies, but rather that they should join with them and support their efforts, just as was done in the fight against tuberculosis.

PHYSICAL EXAMINATIONS

One of the great needs, and perhaps one that could be made to be an outstanding factor in the welfare of all who are in any way engaged in industrial occupations is that annual physical examinations should be made (in the specially hazardous occupations such examinations could be repeated every three months); complete in every detail, and with special inquiry as to the presence of any of the deleterious effects of hazardous trades.

It is easy to assess the disability or determine the degree of disability which may be the result of an accident. But to determine justly the disability resulting from lead or arsenic, the relation to industry of the tuberculosis of the baker or miner, of the tick fever of the cattleman and sheep herder, of the Malta fever of the milker, or of bronchitis, anemia, malnutrition in a man subject to gas poisoning, and so on, is often most difficult, because the causative factors of these conditions are often obscure, and their onset hard to fix. In addition their course is usually chronic.

A physical examination might bring to light a beginning arteriosclerosis, a nephritis, a heart lesion, a gastric ulcer, a beginning tuberculosis, infestation with protozoa, or a cancer, at such early date as would give a major chance of cure and so relieve future misery. Such physical examination in the writer's opinion would do more to cure and prevent the spread of syphilis and gonorrhea than all the present legislation.

Conditions and results now frequently charged to contributory negligence might be eliminated by the physical examination. Accidents are often the fault of an inability of coördination of the senses, such as the direct result of an old or improperly treated syphilis. For example, the foreman of a quarry gave the order to "shoot" and after a large boulder loosened by the blast had crushed his legs, he stated, "I saw it break and thought I had plenty of time before it could reach me." A physical examination proved that he had a triple plus Wassermann, a well-defined Romberg,

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

and the characteristic light reactions and other evidence of a beginning general paresis.

On the other hand, the painter who slipped from a scaffold, and fell two stories to his death, had taken a swig of alcohol just prior to mounting the scaffold. Undoubtedly he contributed to his death, and a physical examination would not have changed the result.

THE SINGLE MAN AND THE ITINERANT LABORER

A very large group of workers, mainly composed of single men working in the woods, in mines and on construction work, and also itinerant laborers in agriculture, are sadly lacking in opportunity for medical examinations, when at the end of their season they migrate to the populous centers. Frequently their bedding, and often their clothing, is vermin-infested, with no place (at least in San Francisco) where the self-respecting man temporarily out of employment can go for a cleansing. Consequently such men may become potential menaces to the public health of the community. It would seem that the only solution would be to require all classes of labor to carry health status cards, just as the majority are now compelled to have union cards.

THE RELATIONSHIP BETWEEN DISEASES OF OCCUPATION AND PUBLIC HEALTH

The relationship of diseases of industry to other diseases and to the general public health is not only well established but exceedingly important from the economic viewpoint. That which menaces the individual, directly or indirectly, menaces community health; and health departments all over the land have one or more inspectors or social workers who are detailed to factory and workshop inspection.

TUBERCULOSIS

An illustration of this menace is well exemplified in tuberculosis among men in industry. The records of San Francisco reveal that, during the last twelve years, there were recorded 10,040 deaths from this disease. Of this number, 73 per cent were men and only 27 per cent were women. The heaviest death rate was between the ages of thirty and thirty-five, for which period 2414 men and 1772 women died from this disease. This shows that in San Francisco, as elsewhere, the tuberculosis hazard in the wage-earning group of men is especially great in the prime of life.

These men have generally established homes; they have wives and children, and usually these children are young. The experience of tuberculosis associations all over the world has proven that the major portion of the problems of social workers arise from this one phase of tuberculosis incidence; and that much of the preventive or curative work is concerned with this group of infected persons. A serious social and economic problem is brought into being when the breadwinner is diagnosed as having tuberculosis and is sent to a hospital or sanatorium. What is to happen to the family of such a patient? For in addition to the possibility of having infected one or more members of the family before the cause of illness was disclosed, debts accumulate, starvation may threaten, the home and family may be broken up.

Again there is the case of the worker who has been unable to carry through an adequate course of sanitarium treatment, and who must return home. Such an unfortunate on his return may find a large extra burden of debt and no work to which he can turn his hand. The standard of living for such a family becomes lower and lower. In desperation the breadwinner may return to the work that originally caused his breakdown. In a short time he is again incapacitated; and returns to the hospital only to die. Thus is completed a vicious circle, which because of inadequate social machinery to aid in the rehabilitation of the tuberculous individual only increases the cost of the original problem.

How could this social and economic question be improved? The following are some of the remedial factors which come to mind:

1. Assistance of the dependents of those patients who are under institutional treatment.
2. Providing a changed and suitable employment for those sufficiently restored to health to be fit for work.
3. Social service work with the family, helping well members to increase their earning capacity.
4. A rearrangement of the home; or securing of more suitable home so that the patient's health may be maintained, and the danger of home cross-infection minimized.
5. Financial aid on a basis of no interest, and easy or long term payments.

From the writer's experience in some of these problems, he is led to believe that if the physicians who are doing industrial medical work were hired by the brawn and muscle instead of by the employing company or corporation, there would long ago have been created safer working conditions; and a saner and more far-reaching social service than now exists, and an entirely different form of workmen's insurance.

OTHER DISEASES

There are a number of other diseases of industry which are possible of communication to contacts of the workman. Among those are anthrax, or woolsorter's disease; hookworm disease, sometimes called "miners' anemia"; typhoid contracted from a polluted water supply of a factory or workshop.

Tularemia of the Rocky Mountain states, transmitted by the woodtick (*Dermacentor andersoni*), the deerfly (*Chrysops discalis*) and undoubtedly by other suctorial insects that feed on various rodents, rabbits, domestic animals, and man. This disease can be brought by the infected individual to remote communities. Malta fever, also called "undulant fever," contracted by milkers as in a recently reported epidemic in Phoenix, shows these infected milkers may remain carriers for two years and perhaps for life.

School teachers are prone to become victims of the communicable diseases of children. Then we have that large group of workmen who become carriers of the pathogenic organisms of a number of the contagious and infectious diseases: such

as conductors on our street cars who have during the past year in San Francisco carried diphtheria, scarlet fever, and infantile paralysis to their homes. A doctor carried poliomyelitis to his family within the past four months. In the San Francisco epidemic of poliomyelitis this year we found a large number of cases occurring in the families of men and women engaged in indoor work. Milkers on dairies have been responsible for outbreaks of septic sore throat, typhoid fever, diphtheria, and scarlet fever. Recently Malta fever was carried by milk distributors from the dairy where they were employed to consumers of unpasteurized milk. In many of the instances here cited there exists a direct relationship where cause and effect are directly traceable between industry and the public.

In the mind of every public health worker there must come the question: To what degree is the morbidity and mortality ratio of the workman's family due to the hazards of his occupation? Does it really matter whether the breakdown comes from lead or arsenic or poor lighting, or the accident from unprotected machinery? Need the disease of occupation necessarily be directly communicable like that of tuberculosis? Is it not a fact that anything which diminishes the efficiency or incapacitates the breadwinner causes a lowering of the standard of living that results in malnutrition, a lowering of resistance and a susceptibility to disease, especially when this incapacity comes into an existing environment that has all the concomitant factors such as dampness, poor light and ventilation, and a number of other things that surround the large family of the laborer. Not only is there in these cases as direct a relationship between occupational disease and general health as in the case of the specific diseases already mentioned, but the effects go further. For they tend to lower the moral standards, and thus often become factors in bringing patients to asylums, almshouses, and prisons.

Another public health problem that is now receiving greater attention than heretofore, has to do with the maternal and congenital effects of occupation on the prospective mother. Through the agency of our prenatal and postnatal clinics, an effort is being made to reduce the number of premature deliveries, of stillbirths, and of mortality of the babies in the first year of life, as well as to bring about a reduction in the maternal death rate. We know definitely that lead, for example, like syphilis or alcohol, may cause sterility; or if pregnancy occurs, more often than otherwise, the lead has a dwarfing and crippling influence upon the fetus, that may result in a child with permanent mental and physical defects.

The recognition of the hazards of industry to the workman is old; in fact, it dates back to 1713, when Bernardini Ramazzini of Padua published a treatise on tradesmen's diseases, but the recognition of their effects upon and relationship to public health is comparatively recent. The ill health among workers which sends four million people to hospitals each year has also changed our social viewpoint. The employers (and there are still many), who hold that their responsibility ends with the payment of wages, and their compliance with government regulations, are out of step with modern civilization and should stand at the head of the list of failures in business. On the other hand, the employers who are appreciative of the facts that attention to the health of their employees and their families, and that provision of congenial working conditions more than justify the money expenditure involved, because of the contentment, the increased efficiency, less loss of time, the higher output and increased sales capacity of their employees, are constantly increasing.

Public health is an economic question that outranks all others in any community. The success and prosperity of commerce and industry, in fact the stability of the government itself rests upon the positive health of its citizens.

The solemn duty of bringing about better health standards in our various communities rests not only upon the health officials, but upon the professional men and women engaged in industrial medicine and industrial hygiene.

SUMMARY

In closing, the following suggestions are offered:

1. That diseases of industry have a close relationship with and, in many instances, a direct bearing upon health and community problems.
2. The state should enforce compulsory education of men and women in industry concerning special hazards of their work, as well as in industrial and home hygiene.
3. The coöperation of unions, lodges, and of insurance societies should be sought in the holding of lectures and clinics, demonstration of protective and preventive measures and first aid along the lines now practiced by the Bureau of Mines, the telephone companies, and other organizations.
4. Physical examinations and issuance of health cards to all workmen and women prior to employment should be required, and as often thereafter as the hazards of the industry indicate, in order to better maintain health. Such complete examinations should be made in every instance at least once a year.
5. A physical survey should be made of individuals engaged in the various industries for the purpose of establishing health standards.
6. Mortality and morbidity data should be collected and compiled; and reports and other information for the instruction and benefit of both workman and the public should be published.
7. A uniform method for recording medical data and records should be adopted.
8. Health and industrial authorities and social agencies should have coöperation in investigating and correcting problems connected with industrial hygiene.
9. The scope and the work of social service and industrial welfare bodies should be encouraged and broadened. Endeavor to bring about facilities not only for physical examinations, but for medical, dental and nursing service in all places of employment should be made.
10. Legislation should be promoted to compel all cities of the first and second class to establish

disinfecting stations as prophylactic and public health measures.

11. Universities should be encouraged to provide in their medical schools facilities for the proper teaching and training of medical practitioners in industrial medicine.

To these might be added a recommendation that physicians engaged in industrial medicine and welfare work, backed by employers of labor in any and all branches, might well form and hold annual conferences with officials and representatives of labor to insure uniformity of reports and records and promote further action on the various other subjects pertinent to industrial hygiene.

1085 Mission Street.

DISCUSSION

J. L. Pomeroy, M. D. (330 North Broadway, Los Angeles).—California, so largely in times past an agricultural state except in the vicinity of the larger cities, is now undergoing a rapid change to industrial centers. It is time that study is given to this problem. Doctor Hassler has laid out a splendid plan for developing industrial medicine and industrial hygiene. In the Los Angeles County Health Department we have under consideration the opening of a division of industrial medicine and hygiene to take special care of this problem. While conditions differ in different parts of California and the character of industries is somewhat different, there is no question whatever that special attention should be paid to industrial diseases.

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John J. Sippy, M. D. (San Joaquin Local Health District, Stockton).—Our old ideas that industrial hazards were limited to the mechanical trades are vanishing, as evidenced by more and more liberal interpretation of employers' liability laws. Doctor Hassler has indicated need of still wider scope in such enactments, as well as of more intensive education of both employer and employee. His comment that if "industrial physicians were hired by brawn and muscle instead of by the employing company or corporation" is pertinent, especially when one views the variation of concern felt for the health of the employee by the companies who operate health and hospital associations in conjunction with employees, and those which do not. California has a serious problem in the itinerant laborer in that responsibility for his welfare is hard to fix upon any county or municipality. Undoubtedly, on account of the brevity of employment of so many of these persons, physical examinations and observations would prove an economic burden upon either employees or employers, even granting the remote notion that they might be brought to perceive the ethics of the procedure. Undoubtedly the state will eventually assume some such responsibility, either directly or by delegation of authority to county and city. Certainly the latter units must seek some such remedy if expenditures for hospitals and social relief activities are to be curtailed. It is a nice problem for joint solution by the physicians, health officials, and welfare workers.

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Roscoe N. Gray, M. D. (333 Pine Street, San Francisco).—Uniform records of morbidity must be developed and careful studies made to determine how we may best proceed to put Doctor Hassler's suggestions into practical operation. He has pointed the way, groping through the darkness of our limited knowledge, but he would be the first to agree that even his trained mind is handicapped by inexact information, leading to recommendations which may not all be practical. He therefore pleads that uniform records be adopted, physical surveys of those at work be made to develop standards of health, and the results of these studies be published for the benefit of society. Such must be done before safe progress may be made.

To encourage the scope of social service and industrial welfare bodies and to provide medical, dental and nursing service in all places of employment cannot be done without a very close approach to state medicine. I do not believe we are ready to lose our individual identity through paternalistic provision of such service by our employers. A better plan than that developed in Great Britain and Germany must be found before we can successfully go too far with providing compulsory medical service in all places of employment.

It seems strange, when compensation laws are in force in nearly every state, and it is accepted that the best industrial medical work requires special thought and training, that so little effort is made by our medical schools to teach industrial medicine. The industrial surgeon is a specialist with no school for special training other than "The College of Hard Knocks."

How far the state may safely enforce compulsory education in industrial and home hygiene cannot be determined. To even approach worthwhile education would require a tremendous addition to our present teaching institutions. I doubt if such education should be applied through compulsion to men and women until we have so taught our children. Children are easier to teach, and the facilities are at hand. Why not use them more fully to teach home and industrial hygiene?

Physical examination will undoubtedly uncover many conditions that ultimately lead to untold suffering, but who is to pay for compulsory examinations to be made at least yearly? The cost would be millions annually. Is the cost to be assessed against industry, the individual, or the state? Vastly increased policing is the price of compulsory health cards before employment to insure that the diseased do not avoid the law. More thought must be given to the problem of placing those physically not fitted to the occupation they desire to follow. Otherwise compulsory health cards before employment will start a hornet's nest of injustice and discontent.

We should request Doctor Hassler to submit specific legislation leading to disinfecting stations in large cities as a public health measure. His brief for their necessity seems unanswerable and he is entitled to the backing of the medical profession in securing the passage of such legislation at an early date.

THE LURE OF MEDICAL HISTORY

THE STORY OF DIGITALIS

By William Dock, M. D.
San Francisco

NO medicinal plant has been more fortunate in its introduction to general use, and none more lauded, abused and discredited than the foxglove. It was first described in *Campanula sylvestris* (Waldglocke), by Hieronymus Bock in 1539. It was named *Digitalis purpurea* in 1542 by the botanist and professor of medicine, Fuchs, of Tübingen. The word "foxglove" occurs in English herbals as far back as the eleventh century Saxon "Leechbook." The plant was primarily used for external application, although it had some reputation in the cure of scrofula, cough, and epilepsy. However, by 1770 it seems to have been widely used, chiefly by laymen, in certain parts of England for treating dropsies. Hearing of such cures, William Withering of Birmingham began prescribing the drug to his patients, but toxic symptoms caused him to hesitate in continuing its use. Often, with drugs used by quacks, the cure of some prominent person leads to intensive study by competent physicians. It was such a cure of hydrops pectoris in the principal of Brazen Nose College, Oxford, that led Withering to continue his investigations on digitalis. His friends also took up the drug for the treatment of dropsical

patients; its use was begun at Edinburgh in 1779 and it was included in the pharmacopeia there in 1783.

Mr. Charles Darwin, uncle of the great naturalist, had learned of this use of digitalis, and his posthumously published papers contain the first account of its curing dropsy. They appeared in print in 1780, one year after his death at the age of twenty, and were abstracted in 1783 in the *Medical Commentaries.* The case there described is of particular interest since the patient had been seen in consultation by Withering, who ordered the digitalis.

Digitalis purpurea, from the earliest woodcut, first volume of "De Stirpium Historia" of Leonhart Füchs. This book, dedicated to Anthony Fugger, was printed in 1542 and reprinted in 1545. The blocks were used for numerous botanical and medical works in the next thirty years.

In 1785 appeared William Withering's "An Account of the Foxglove and Some of Its Medical Uses: with Practical Remarks on Dropsy, and Other Diseases." With this book Withering, an experienced physician and botanist, had produced the world's therapeutic classic. The modesty, caution and accuracy of this presentation are all equally remarkable. He says, "It would have been an easy task to have given select cases, whose successful treatment would have spoken strongly in favor of the medicine. I have, therefore, mentioned every case in which I have prescribed foxglove, proper or improper, successful or otherwise." He laid down intelligent advice on dosage and exhibition of the drug: "Let it be continued until it either acts on the kidneys, the stomach, the pulse, or the bowels; let it be stopped on the first appearance of any one of these effects." His usual dose was one to three grains of powdered leaf per day. While we may smile at some of the diseases he benefited with it, we can agree with his main conclusion: "It seldom succeeds in those with a tight and cordy pulse. On the contrary, if the pulse be feeble or intermitting, we may expect the diuretic effects to follow in a kindly manner." Case 4 of his series of 160 patients is apparently the one included in Charles Darwin's account. Withering states her "pulse was extremely weak and irregular," after digitalis it became "more full and more regular." He concluded that digitalis "has a power over the motion of the heart, to a degree yet unobserved in any other medicine, and that this power may be converted to salutary ends."

Three years before this book, Saunders had written an account of cures of consumption by digitalis. The difficulty of differential diagnosis between phthisis and mitral heart disease, in the days when even inspection of the thorax was rarely practiced, is obvious. We must not be surprised that Withering's work was largely ignored and for twenty years most reports on digitalis dealt with its effects on phthisis. Regular and miraculous cures were reported, particularly about 1792 and 1799-1802, with a hiatus along toward 1797, when the drug was wholly neglected. The discoverers were hailed as equal to Harvey, and one author concluded that "consumption will henceforward as regularly be cured by the foxglove, as ague by Peruvian bark." At this time began the discussion, still warmly argued, as to whether digitalis was a circulatory stimulant or sedative. Ferriars first urged the latter, Beddoes, who had measured pulse pressure with a rude device, the former theory of its action.

In 1807 William Hamilton gave a review of the history of the drug, together with his success in giving it to patients with scarlatinal nephritis, phthisis, dropsy, but more particularly in cases of hydrothorax. He followed Withering closely in his work and stressed the importance of Withering's book. Like the latter, Hamilton regarded hydrothorax as distinguished not only by orthopnea, but by "the intermission and irregularity of the pulse—the most marked and common symptom." Withering too had thought hydrothorax to be usually curable with foxglove.

In the same year appeared a treatise "proving that the Medicinal Properties of the Digitalis are diametrically opposite to what they are believed to be." This work, by "James Sanders, one of the Presidents of the Royal Medical and Royal Physical Societies of Edinburgh," proved that digitalis, in two thousand observations, had accelerated the pulse and stimulated the heart. It was translated into many languages and seriously debated for half a century by Continental authors. I fear they overlooked the scorching review of this book in the *Edinburgh Medical and Surgical Journal,* for they would have learned that Sanders was a medical student, whose observations were made at student "digitalis parties," and who is contrasted by the reviewer with "those weak minds, Cullen, Darwin, Rush, Willis." "His hopes are raised, his imagination is excited by the prospect of being the champion of truth, against error sanctioned by great names." Fifteen years later the stimulant theory of digitalis action was revived by Joeg, a Leipsic obstetrician, who observed in himself and fellow members of a club, marked aphrodisiac and cardiac augmentation after minute doses of the drug.

In the main we may conclude that for a century after Withering's first observations, digitalis was considered a cardiac sedative and, except for Hamilton and Blackall (1811), there were no records of intelligent use. Some, like Laennec, considered it of little value, others of the great

clinicians—Hope, Latham, Stokes, Flint, Walshe —used it fearfully in ineffectual doses. In France, Germany, and Italy its successful use was occasionally reported. Traube confirmed Blake's observation that it raised blood pressure, but considered it a sedative which diminished blood flood and oxygenation. About 1870, as we may see by comparing the first and second editions of Flint's (1859 and 1870) and Walshe's (1862 and 1874) treatises on heart disease, the rôle of digitalis as a cardiac tonic became firmly established. Walshe, acknowledging the error of his earlier views, points to Withering's remarks on the difference in effect of digitalis on the "tight and cordy" and the "feeble and intermitting" pulse as proving that Withering had known from the start that digitalis' stimulant action alone is important in the cure of disease. Not until the work of Cushny and James MacKenzie was it realized that digitalis does not act on all patients in the same way, but slows the pulse most brilliantly in those who have auricular fibrillation. Only after this was it possible to investigate its effect on heart failure uncomplicated by arrhythmia.

Stanford University School of Medicine.

CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

TULAREMIA*

REPORT OF CASES

By Clair L. Stealy, M. D.
AND
David Miller, M. D.
San Diego

THE following is a report of two cases of tularemia, the first of which was seen at the San Diego County General Hospital, and the second at the Rees-Stealy Clinic.

REPORT OF CASES

Case 1.—The first patient was a young man, age eighteen years, and single, who worked on a dairy farm, but had no contact with any of the animals. He was admitted to the hospital on July 10, 1928, complaining of a swollen eye, large masses on the left side of face and neck, a painful left ear, and painful swallowing. This condition had its onset two weeks prior to admission, and began with swelling of the lids of the left eye. The swelling increased progressively and rapidly for three days, at which time he noticed small lumps in front of the left ear, just at the angle of the left jaw and on the left side of the neck. On July 3 he had chilly sensations, cold sweats, and a fever. He did nothing to relieve the condition of the eye, but he took numerous hot drinks to relieve the chilly sensations, with considerable success.

Upon investigation it was discovered that the patient had been hunting rabbits and squirrels in the Mission Hills of San Diego, and on about the third day of this hunting trip, which lasted one week, the present illness had its onset as described. He caught many rabbits and squirrels, all of which he and his younger brother dressed; the squirrels were fed to their house cat, and the rabbits were used as food for the family. The patient does not remember having injured either his eye or his hands during that week of hunting and dressing these animals, and does not remember splashing any of the animals' blood into his eyes.

No symptoms referable to the cardiorespiratory, gastro-intestinal or genito-urinary systems were present. There was no history of gonorrhea or lues. The patient had had the usual childhood diseases and when in the grade schools had had a condition of the right eye which he himself thought to be "pink eye." Other than this he had never had any difficulty with his vision. The family history was negative.

Physical examination showed a young man well developed, well nourished and of good mentality. The temperature was 102.6 degrees, the pulse 96, of good quality and regular, the respiration 22, and not labored. The right eye, nose, and right ear were negative.

The upper and lower lids of the left eye were extremely swollen and injected, and the eye completely closed and exuding a muco-watery secretion. The conjunctival covering of the eyeball was extremely injected and swollen, but the cornea and iris remained entirely uninvolved; the pupil was normal in size and reaction. Eversion of the eyelids revealed on the palpebral conjunctiva, many deep, round, yellow necrotic ulcers. These ulcers had a punched-out appearance and varied from one millimeter to five millimeters in size. They ran down almost to the tarsus and were noted also over the upper and lower tarsi. The surrounding conjunctiva was a deep red color, soggy and swollen, but did not bleed when wiped with a wet cotton sponge.

The mouth, teeth, and tongue were negative. The left tonsil was injected and showed several small ulcerations like those in the eye. The pharynx and tonsillar pillars on the left side were also injected.

The left preauricular lymph gland was the size of a cherry and tender to the touch. The external auricular canal of the left ear was clear but somewhat narrowed by the pressure of the gland. On the skin over the left zygomatic bone and arch were six small pustules. The superficial cervical lymph glands at the angle of the left jaw were somewhat matted together, about the size of a hen's egg and extremely tender, but did not fluctuate. The left axillary glands were small but palpable. There were no other glandular enlargements.

The liver and spleen were not palpable and the remainder of the examination was entirely negative. There were no ulcerations on the hands or extremities.

Laboratory findings showed the urine to be negative throughout. White blood count was 15,200. A differential count showed: polymorphonuclears, 65 per cent; lymphocytes, 31 per cent; and large mononuclears, 5 per cent. The Wassermann was negative.

A smear from the left eye, taken on the day of admission to the hospital, was negative for any organisms. On July 18, 1928, blood from the patient, sent to the United States Public Health Center for agglutination, was reported positive for tularemia.

On July 24, 1928, the preauricular gland was aspirated and about two cubic centimeters of brownish colored pus obtained, part of which was used for a culture and part injected into the abdomen of a rabbit. Smear from this pus was sterile. On August 7, 1928, the rabbit was killed. It showed no symptoms of illness, and examination revealed no pathological lesion.

On August 15, 1928, the preauricular gland was opened and a rubber drain inserted. The gland discharged a brownish colored pus for several days and then healed completely.

The patient had no more trouble and was discharged as cured. One month later the patient returned to the clinic for observation, and was found to be in satisfactory condition.

Case 2.—The second patient was a man, sixty-nine years of age, who scratched his left thumb while dress-

* From the San Diego County General Hospital, San Diego.

ing rabbits. Ten days later a small papule developed on the thumb, which later broke down into a granulomatous area, with lymphangitis streaking up the arm, chills, fever, and swelling of the axillary glands. The patient was markedly prostrated and weak and was sent to the hospital, where dressings were applied to the thumb and compresses to the swollen axillary glands. The glands gradually increased in size and were finally incised and a large quantity of thick pus was evacuated. Smears were negative. After resolution had taken place there was apparently marked infiltration of fibrous tissue as the glands are still, four months later, very hard.

During his stay in the hospital the patient developed what appeared to be an acute cold with a recurrence of temperature. This subsided, but the cough persisted for a week or ten days.

Physical examination upon entrance to the hospital, with the exception of the findings noted above, was essentially negative. The heart was not enlarged, the sounds were of good quality, and the blood pressure 140/80. The urine showed an acid reaction with a specific gravity of 1.027; microscopic examination showed very occasional red and white blood cells and a few bacteria. The blood count showed: red corpuscles, 4,430,000; hemoglobin, 80 per cent; and white corpuscles, 11,300. The differential count was: polymorphonuclears, 77 per cent; and small lymphocytes, 23 per cent. Blood sent to the State Hygienic Laboratory at the University of California, in Berkeley, was reported positive for tularemia, with an agglutination of 1 to 1280.

COMMENT

The points of interest in the second patient were the small granuloma of the thumb which was about one-quarter of an inch in diameter, elevated less than one-eighth of an inch, and which exuded only a small amount of seropurulent material; and the fact that the general symptoms were out of all proportion to the initial lesion. It was this latter fact together with the history which suggested the possibility of a tularemia.†

Rees-Stealy Clinic.

DRIED MILK AS A DRESSING FOR INTESTINAL FISTULA*

REPORT OF CASE

By CLARENCE E. REES, M. D.
San Diego

THE contact of the digestive ferments of the pancreas and small intestine with the skin in cases of intestinal fistula is the cause of a great deal of distress to the patient suffering therefrom. It is generally true that the higher the fistula the greater the erosion and maceration. Often the burning pain is constant, and relief is obtained only by very frequent changes of dressings and the application of bland ointments such as lanolin, zinc oxid, vaselin, and mild acid dressings, the soothing effect of which lasts only for a few minutes. Only too often the irritation continues until the secretions have lessened from a closing of the fistula or until the fistula is closed surgically. The deeper structures beneath the skin seem to withstand the action of the ferments well, and since they have a minimal sensory nerve supply no discomfort is caused through them.

Because of these facts we believe that our experience with a new dressing (whole dried milk) as used in the following case may be of interest.

REPORT OF CASE

The patient, a male, age fifty-four years, was operated upon for carcinoma of the antrum of the stomach. The distal half of the stomach and, in order to get well beyond the growth, about 3.5 centimeters of the duodenum distal to the pylorus were resected, leaving a short stump closely attached to the head of the pancreas. Closure of the duodenum was made with three layers of catgut, but there was considerable tension on the last row of sutures. The remainder of the operation was completed without difficulty and the abdominal wound closed without drainage. The patient had an easy convalescence and left the hospital in two weeks.

Ten days after returning home, and twenty-four days after the operation, the patient was seized with abdominal pain followed by vomiting. When we saw him shortly afterward, he was suffering intensely and had exquisite upper right quadrant tenderness associated with localized board-like rigidity. The patient returned to the hospital and immediate exploration was advised but refused. The next morning there was marked increase in the general abdominal distention and permission was given to open the abdomen. Incision was made to the right of the scar of the former operation. The upper right quadrant was found to be well walled off, containing about 150 cubic centimeters of dark grayish fluid, and all structures were intensely inflamed. A small opening was found in the suture line of the duodenal stump. As suturing of the perforation was not feasible on account of the inflammatory infiltration, a rubber drain was inserted in the cavity and the wound closed. Following establishment of drainage, the duodenal secretion poured forth and the skin around the drain became eroded, macerated and inflamed. The usual dressings were used with only slight relief.

We then tried a dressing of whole dried milk (commercial), using the dried milk because it contains the elements necessary to neutralize the ferments from the pancreas and intestine, namely, proteins, carbohydrates, and fats; because it is a powder and absorbs the secretion as it is poured out; and because there is no odor from the digestion of the dried milk. The results were startling. That night the patient had his first full night's sleep and the next morning the skin was greatly improved; long before the fistula closed, the erosions had healed and the skin had lost its tenderness.

The dressing consists of a layer of dried milk, about 0.5 centimeter in thickness, several layers of gauze, another layer of milk and, finally, the usual abdominal pad, and is renewed every four or six hours.

We have had equally good results with the use of this dressing in a case of lower intestinal fistula.

2001 Fourth Street.

† All laboratory work for the first case was done by Ernest Mundkowski of the San Diego County General Hospital.

* From the Rees-Stealy Clinic, San Diego.

"Peter Pan" Is Now a Gold Mine for a Children's Hospital.—What child has not seen Peter Pan either on the stage or in "the movies"? And now every time any child, young or old, pays for the delight of seeing that whimsical play of Sir James Barrie's, some of the money will go to help little sick children in London to get well again. For that beloved author has given over unconditionally to the Hospital for Sick Children in Great Ormond Street, all his rights to royalties from Peter Pan, a gift which it is estimated will add something like $10,000 a year to the hospital's income. This generous action has already borne fruit, for "the first pirate" has anonymously given a pound note (nearly $5) to the hospital, hoping that others might follow his example.—*United States Department of Labor.*

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

PATHOLOGIST'S PRACTICAL AID TO THE SURGEON

D. Schuyler Pulford, Woodland.—A neoplasm responds most readily to treatment during its early stage. A clinical diagnosis at this time may be difficult or impossible. The importance, therefore, of a correct pathological tissue report is obvious.

Gross diagnosis has given way to microscopic examination. Dr. Verne Hunt, in an article published in this journal in 1925, quoted MacCarty as saying that of 47,434 surgical specimens removed at the Mayo Clinic, 18.2 per cent required microscopic diagnosis and, further, that 5.7 per cent of all surgical cases producing surgical specimens have tissue removed for diagnosis during operation and that microscopic examination of 2.65 per cent of all such specimens leads to a diagnosis which does not agree with the clinical or preoperative diagnosis. Of these cases, 60 per cent require a different surgical procedure as the result of the microscopic diagnosis.

Modern surgery requires that a microscopic diagnosis be given at the operating table by a pathologist trained in the rapid preparation and examination of fresh tissue.

Technique

The fresh tissue examination requires the cutting of sections by the freezing method. They may be fixed either by bringing to the boil with Muller's reagent or formalin before cutting and stained with H and E or Von Gieson, or cut unfixed and stained with polychrome methylene blue. Terry's modification of Unna's preparation is very satisfactory and gives instantaneous staining, and a good differential picture between chromatin material and connective tissue stroma.

Fresh Tissue Examinations Necessary

Since so many surgical procedures are dependent upon a microscopic diagnosis of excised tissue, the immediate examination of such tissue is indispensable, not only to the surgeon, but also to the patient. A conscientious physician or surgeon will not subject a patient to the danger and economic loss of two operations when one will suffice. Nor will he risk the spread of a malignant neoplasm through the delay necessitated in obtaining a fixed tissue diagnosis. Doctor Bloodgood puts this very well when he says: "Either we must make surgeons pathologists or bring the pathologist into the operating room and, in addition, whether the surgeon is the pathologist or the pathologist is present in the operating room, both must learn the necessity of studying these doubtful tissues, unfixed and stained by the polychrome methylene blue method. For the past five years I compared this method with hematoxylineosin, fixed and unfixed with permanent paraffin and celloidin sections. I am confident that the diagnosis should be more certain when made from fresh unfixed tissue, frozen and stained with the polychrome methylene blue. In some instances it is helpful to have the sections stained with both and to use tissue both fresh and fixed by boiling in formalin. This method requires an unusual technician, but it is the only method which promises the solution of the diagnosis of doubtful cases when the diagnosis must be made at the exploratory incision. With a good technician and such trained pathologists, nothing is gained by delay. The only object of delay is to get the tissue to a better technician and a better pathologist. I therefore take this opportunity again to urge surgeons to begin now and provide in their operating rooms means, methods, and men to meet this new demand of tissue diagnosis, when treatment which promises the most for malignant disease can follow the moment this earlier recognition is made."

Pathologists, to be proficient in the diagnosis of fresh tissue, must be called frequently by the surgeons, for it is only after years of such study that a high degree of efficiency is reached. To have a small surgical pathology laboratory adjoining every operating room should be the aim of surgeon and pathologist alike.

Gross Diagnostic Efficiency

If a surgeon has an 80 per cent correct diagnostic acumen in the recognition of pathological tissue which he sees at the operating table, he is above the average. With practice and encouragement the fresh tissue pathologist can raise this percentage of correct diagnosis to from 95 to 98 per cent. From 2 to 5 per cent of specimens must be fixed for further study. Since the pathologist's efficiency is 15 to 18 per cent above that of the surgeon's he should be considered as a consultant rather than as a technician and should not be discarded if, for the sake of honesty, he is occasionally loath to commit himself. The surgeon should have sufficient knowledge of gross pathology to excise the proper specimen for examination. Inflammatory tissue often lies adjacent to a neoplasm and, if presented instead of the neoplastic growth, the true issue will be missed.

Help From the Surgical Pathologist

The function of the surgical pathologist reaches further than the mere diagnosis or naming of the pathological process. Through his observations of

the reaction in the tissues to malignant cells he may help the surgeon in estimating the patient's probable postoperative longevity. Lymphocytic infiltration, lattice fibers, fibrosis and hyalin are significant as natural defense processes against cancer.

Broders, his students, and followers, have proved beyond a doubt that the degree of cellular differentiation of a malignant tumor can be accurately measured and does roughly reflect the degree of potentiality of destruction of that tumor. The "grade" of a malignancy is not the whole story, but it is the most important chapter in a tumor's life history. The age of the patient, duration and size of the growth, glandular involvement and tissue reaction are all important factors to be taken into consideration in prognosis.

This determination of the degree of malignancy is mentioned in a discussion of surgical pathology because it can truly aid the tissue pathologists in helping the surgeon to determine the justifiable magnitude of an operation and in the standardization of the methods of treating malignant lesions. It also helps to collect data on the relative value of the various forms of treatment of malignancy.

As evidence that the grading of neoplasms is practical, we find Martsloff, independently of Broders, dividing the squamous cell epitheliomas of the cervix into grades of malignancy and, at last, even Ewing permitting such heresy to be preached in his laboratory.

Biopsy

A large percentage of the specimens presented to the surgical pathologist are from so-called biopsies. When possible we should follow the rule of "excision" rather than "incision," but, if necessary to make a diagnosis before subjecting a patient to a mutilating operation, it is permissible to cut into malignant tissue. The type of biopsy rather than the principle must be criticized. Take specimens with the electrocautery if possible. If not, use the knife and immediately cauterize with pure carbolic acid, followed by alcohol, or apply 50 per cent zinc chlorid with a saturated piece of gauze, as urged by Bloodgood.

The several problems associated with biopsies are well discussed by Doctor Bloodgood in his chairman's address before the section of surgery at the Atlanta meeting of the Southern Medical Association, November 1926. The consensus of opinion is in accord with his own. Some of his major conclusions are as follows:

1. Excise completely whenever a tumor can be removed without mutilation of or danger to vital organs or structures.

2. Incision must be done when a diagnosis of malignancy means an operation of greater magnitude than for a benign condition, especially if such a complete operation is mutilating or dangerous.

3. The best type of biopsy is one in which the tissue is exposed with thermal and chemical cauterization for protection and the diagnosis made from an immediate frozen section, stained with polychrome methylene blue.

4. When the operator for any reason is not prepared or willing to proceed on the frozen section diagnosis in cases suggestive of malignancy, the wound should be packed with zinc chlorid sponges and the skin closed. This safely allows ample time for further microscopic consultation.

5. Cutting into malignant disease without chemical or thermal cauterization and a technique for the prevention of contamination of the wound with malignant tumor cells, certainly has an element of danger. It varies with different tumor tissues. The greater the interval of time between the exposure of the malignant tumor or biopsy, and its radical removal, the greater the danger.

6. In cancer of the lip and cancer of the extremities en bloc dissection of the local growth and glands is not essential and there may be an interval of time in the removal of a local growth and neighboring lymphatics.

7. The most difficult part of this new demand upon operators is the technique of the frozen section and its microscopic interpretation.

Summary

Modern surgeons require accurate microscopic fresh tissue diagnosis. The technique of the frozen section is perfected. The fresh tissue report is necessary to aid the surgeon in prognosis as well as in determining the justifiable magnitude of the operation; and biopsies, when necessary, are safe, if done in the proper manner.

* * *

Edwin I. Bartlett, San Francisco.—The public has the right to demand of the modern surgeon that he proceed with his surgical treatment on the basis of a positive diagnosis. The surgeon, on the other hand, has the right to expect from the hospital where he operates adequate laboratory assistance. This very often means the making of frozen sections. All properly equipped hospitals should have, not only a laboratory, but a pathologist versed in all of the frozen section procedures and in the interpretation of the microscopic picture. Very few surgeons have had the advantage of training in frozen section diagnosis and, therefore, must rely upon someone else for the interpretation of the gross picture and the microscopic sections.

If the surgeon or the hospital fails to measure up to the modern standards the patient suffers. In the case of malignant disease an operation by an unqualified surgeon or by a qualified surgeon without laboratory equipment may mean the loss of the patient's life. For many years it has been known and broadcast that a two-stage operation, for instance in cancer of the breast, is almost universally fatal. The delay of several hours to a few days between the local removal of the tumor for the purpose of the pathological examination in some distant laboratory, and the complete breast operation following the report from the

pathologist, means that chances of a cure have been reduced to 10 per cent, no matter how early the disease. On the other hand this same patient in the very early stages of the disease may have at worst 80 per cent chances of a cure with the one-stage operation. Our only hope of avoiding tragedy from two-stage operations is the one-stage operation made possible by frozen section diagnosis while the patient is asleep on the table under the primary anesthetic.

The method used in frozen section diagnosis is immaterial provided the pathologist or surgeon is able correctly to interpret the prepared section. The technique used should be the one which allows the pathologist or surgeon the highest percentage of correct diagnoses. Some individuals can best interpret unfixed material stained with polychrome methylene blue. Others have difficulty with this method and find a two-stain fixed tissue technique preferable. It has been my experience that one method is as reliable as the other and in all other ways is as satisfactory provided the interpreter of the sections is thoroughly familiar with that procedure.

* * *

W. T. Cummins, San Francisco.—The equipment for the preparation of frozen sections constitutes an important part of a hospital laboratory. It is necessary that the pathologist have adequate training in the interpretation of so-called surgicopathologic histology. Either he or one of his specially trained assistants shall be prepared for the reception of the biopsy specimen. Of the several recognized techniques there seems to be no universally popular one. The method of choice is the one to which the pathologist is accustomed. The writer prefers hot formalin fixation and hematoxylin and eosin staining, for purposes of superior cellular differentiation. Later, sections are prepared by the slower paraffin technique for comparative purposes.

It is unfortunate that there is not a larger percentage of surgeons who appreciate the value of the one-stage operation in suspected malignancies. We must realize that the manipulation of malignant tissues by the removal of a segment with a material delay in the removal of the remainder, may spell disaster to the patient. Local metastases and distant embolisms are facilitated thereby. The earliest diagnosis is none too early. The layman is prone to postpone his visit to the surgeon and the condition at the time of the first visit may be advanced.

Aside from the study of the biopsy specimen, the pathologist contributes also materially to the assistance of the surgeon by the routine and painstaking examination of all tissues removed at operation. In the larger hospitals each day the laboratory receives appendices, tonsils, gall bladders, ovaries, etc. Some specimens have not been incised. Not rarely a gross examination, and subsequent histologic, has revealed a hitherto undiscovered pathology that is of material assistance to the surgeon.

The day has arrived when the pathologist has added to his postmortem pathology the mental and mechanical equipment for the study of *living* pathology. How essential this is in our efforts to reduce the morbidity and mortality of disease!

The Antioch Shoe.—Antioch College, practical as always in its research contributions, noted that Antioch girls in many cases became seriously fatigued and with lowered efficiency under the normal strain of productive living during the five-week period of coöperative employment. In a number of cases the cause was traced to bad posture and further to improperly designed shoes.

It was found, on investigation, that foot troubles from faulty shoes were on the increase because of the difficulty for women and girls of finding an attractive shoe which would keep the normal foot from serious harm. All available shoes were rejected either by the girls themselves or by the group of medical experts who were put to work on the problem.

Studies were then made with the planning of a prophylactic as opposed to a corrective shoe as their objective, and the following essentials of construction were found necessary:

1. Sufficient width across the ball to permit the metatarsals to carry the body weight without lateral crowding.
2. Width across the toes to prevent crowded toes, etc.
3. Ample length over all, to prevent jammed toes.
4. Broad, low shank, with heels no higher than one and one-half inches to restrict the amount of weight thrown on the metatarsal heads, and to contribute to body balance and poise.
5. Semiflexible shank, rigid to a point about one and one-fourth inches ahead of the heel front, fully flexible beyond. This supports the foot when at rest, but provides flexibility when walking.
6. Broad heel seat to allow for expansion, and narrow at the top to prevent the heel from slipping and to insure a snug fit at the ankle.
7. Moderately straight inner line to permit proper toe position.
8. Instep on the inside higher than on the outside, conforming to the true shape of the average foot.
9. Attractive patterns and leathers to interest the feminine eye.

Anyone interested in correct shoe fitting will find of value the pamphlet issued by Antioch College on this subject, giving the results of its investigation.—*The New England Journal of Medicine,* April 1921.

"Youth."—"Youth is not a time of life—it is a state of mind. It is a temper of the will, a quality of the imagination, a vigor of the emotions. It is a freshness of the deep springs of life. Youth means a predominance of courage over timidity, of the appetite for work over love of ease. This often exists in a man of fifty more than in a boy of twenty. Nobody grows old by merely living a number of years. People grow old by deserting their ideals.

"'Whether seventy or sixteen, there is in every being's heart the love of wonder, the amazement at the stars and the starlike things and thoughts, the undaunted challenge of events, the unfailing childlike appetite for what next, and the joy and the game of life. You are as young as your faith, as old as your doubt; as young as your self-confidence, as old as your fear; as young as your hope, as old as your despair. So long as you receive messages of beauty, hope, cheer, grandeur, courage, and power from earth, from men, and from the infinite, so long are you young.'—*International Paper Monthly.*"

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Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this journal.

Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

NEW CONSTITUTION AND BY-LAWS ADOPTED AT SAN DIEGO

Action of the San Diego Session.—The much discussed revision of the Constitution and By-Laws of the California Medical Association, which has been pending for some four years, is now a feat accomplished. The final adoption, while much a surprise to many members, was also very much to the satisfaction of those colleagues who have been interested in a revision of the rules of procedure which form the basis of organization of the California Medical Association. The proposed revision was adopted on May 8, without a single dissenting vote in the House of Delegates, at the fifty-eighth annual session of the California Medical Association at San Diego.

* * *

Reorganization Constitution Which Was Adopted Twenty-five Years Ago.—The Twenty-Five Years Ago column of this issue of California and Western Medicine contains an item which records the adoption of a constitution and by-laws by the California Medical Association, our State Association at that time being known under the name of The Medical Society of the State of California. The rules which were then adopted were a modification of a model constitution and by-laws which the American Medical Association, at that time of its own reorganization, urged state medical societies to use.

* * *

The Constitution and By-Laws Which Were Repealed.—With the passing of years, those rules of organization were modified until the form printed in the August 1927 issue of California and Western Medicine (page 244) came into existence. It was that constitution and its by-laws which was repealed last month.

* * *

The Basis of the New Constitution and By-Laws.—The constitution and by-laws adopted at San Diego this year was based on a model constitution and by-laws for state medical societies brought out by the American Medical Association in 1925. The changes from the American Medical Association model represented some deletions, and also the incorporation of certain changes which the original committee of nine on revision, appointed in 1926 by the chairman of the Council of the California Medical Association, thought it wise to include, to better adapt it to California needs.

Prior to the 1928 annual session of the California Medical Association at Sacramento, a second proposed constitution and by-laws was presented by some members of the Council. Both revisions were printed in the August 1927 issue of California and Western Medicine, the appointed committee's draft being on page 248, and the volunteer committee's draft on page 255. At Sacramento the further study of revision was given over to a new committee of three, that committee bringing in a report to the Council last fall which, with minor modifications, was in favor of the revised draft of the appointed committee of nine. That draft was printed and distributed to the members of the House of Delegates at Sacramento, but was not reprinted in California and Western Medicine.

At San Diego the Council placed the final report of the Sacramento committee of three in the hands of a new committee of three, which in an almost continuous three-day session, worked over the rules, having the same printed and distributed to the members of the House of Delegates prior to its second meeting on May 8. After this final revision the members of the reference committee also went over the constitution and by-laws line by line; and three or four other members who had been on previous committees also aided the final revision committee. This record of the events leading up to the final adoption of these new rules is here given, so that every member of the Association may be made acquainted with the fact that the fullest possible discussion of all phases of the new constitution and by-laws was had by representatives of the profession from all parts of California.

* * *

The Particular Objects Aimed at in the Revision.—It is believed by those who have had a large experience in medical organization work

that these new rules for the better government of the California Medical Association will give our state medical association a highly centralized authority, but at the same time an elastic form of government. Through the new rules it is hoped to bring to its executive and administrative officers a large group of experienced colleagues, whose knowledge and experience should aid in the solution of the many scientific and organization problems of the California Medical Association.

* * *

New Constitution and By-Laws Will Be Printed in the July Issue.—The new constitution and by-laws will be printed in the July issue of California and Western Medicine. Reprints will be sent to component county societies. Officers and members of component county societies are urged to look over these new rules of government, which will be so printed and indexed that the various items will be more easily understood than is usually the case when material of this kind is huddled together in compact, inadequately paragraphed and uninviting fashion.

Certain innovations in the new rules will be discussed separately in this and future issues of California and Western Medicine. Some brief comments on a few of the major changes at this time may be of interest. Among such changes are those noted in the paragraphs which follow.

* * *

Some of the Special Changes in the New Constitution and By-Laws.—It is stipulated that the *fundamental organization* of the California Medical Association comprehends three major elements: one, the Association as a whole, and which, at an annual session, is represented in a general business meeting; two, the Scientific Assembly, which includes all general and section scientific meetings; and three, the House of Delegates, and its subordinate bodies, acting as the business agents of the Association.

Our *membership* hereafter will consist of active, associate, retired and honorary members.

The *complexion of the House of Delegates* remains the same. The basis of representation for component county societies is one delegate for each fifty members or any fraction thereof. It was formerly stated to be a "major" fraction thereof. As heretofore every component county society will be given at least one delegate, even though it have less than fifty active members.

A presiding officer of the House of Delegates, who will be known as the *speaker,* is added to the list of officers who have a seat in the Council. The *editor and secretary-treasurer* each become members of the Council, but are not given the right to vote in the Council. The House of Delegates also elects a *vice-speaker,* who, however, has no membership in the Council.

The nine district and six at-large *councilors* remain as before. In this connection the House of Delegates ratified the *redistricting* of the councilor districts as proposed by the Council.

The election of district councilors will hereafter be initiated through nominations made in caucuses of the delegates from each councilor district.

As regards *publications,* in addition to California and Western Medicine, which is the official journal, and the annual directory, a third publication to be known as the Pre-Convention Bulletin is brought into being. In this new publication will appear reports of officers and committees; and through its subject-matter it is hoped to aid members of the House of Delegates to have a better perspective of Association activities when they are called upon to act as the business agents of the State Association at an annual session.

The *incorporation* clause prepared by the general counsel of the Association is modeled after the form which was prepared by him for the San Francisco County Society; and if put into being will permit the Association to look forward to donations, bequests, and legacies that could materially add to the prestige of the California Medical Association by giving it the means and capacity for greater work and service.

The *details of membership rights* and privileges are very thoroughly covered in the new by-laws.

Credentials of delegates will be scrutinized by a new *committee on credentials,* as in the House of Delegates of the American Medical Association. Delegates who do not attend or give satisfactory excuses cannot be reëlected as delegates until two years have elapsed.

Instead of one *reference committee,* as in the past, there will now be two: one for reports of officers and committees, the other for new and miscellaneous business.

An annual *budget* to be submitted by the Council to the House of Delegates is provided for.

In order to do away as much as possible with special committees, which so often function in most irregular fashion, some *eleven standing committees* comprehending practically all of the major activities of the Association are authorized. Each of these committees consists of an executive group of three members, one member being elected each year for a three-year term, the committee electing its own chairman and having the right to appoint from two to ten advisory members to aid it in its work. Every committee must print its annual report on work covered, in the Pre-Convention Bulletin, or be stigmatized with the legend, "No report rendered." It is hoped through these committees to add a large group of workers to the administrative corps of the Association. One member of the Council is on each committee to act as a liaison member with the central office of the Association.

* * *

Why Members are Urged to Read the New Constitution and By-Laws.—The above notations

cover most of the modifications and innovations in the new rules. Members are urged to read the new constitution and by-laws when they appear in the July issue of this journal. It cannot be too often stated that if it were not for our national, our state and our county medical organizations, the onslaught on scientific medicine from commercialistic and faddist sources would be so numerous and powerful that much of the joy of service, as well as those decent rewards which go with good service, would be taken from the majority of doctors of medicine. Such a calamity would make for a deterioration of our profession and its standards, and would mean a grave menace to public health interests and to the welfare of our country.

Organization in medicine, therefore, is a something which concerns every one of us who is in practice, no matter what our supposed professional rank may be, and no matter whether we acknowledge interest in medical organization work or not. If we do acknowledge the importance of medical organization to our personal and to our group professional interests, then it behooves each of us to have an intelligent understanding of the methods of government in our national, state and county medical societies. The reading of a constitution and by-laws, even though at first thought a most dry and uninviting duty, can become a study of live and pertinent interest if we approach it in a proper attitude of mind. For through a better understanding of the objects of organization, we are far more apt, each of us, to accept the responsibilities which fall on us; and each of us will be more willing to do his full part in maintaining the standards of scientific and nonsectarian medicine.

* * *

Proposed Referendum on Incorporation.—In this connection, and as an expression of alertness to this responsibility, every member of the California Medical Association is urgently requested to promptly send in his vote when the referendum on the incorporation of the California Medical Association is later sent out to the members. To comply thoroughly with the corporation laws of California, in relation to organizations such as our State Association, the vote of the members should be a matter of record. The House of Delegates at San Diego, without a single dissenting vote, took action in favor of incorporation. It is hoped that a somewhat similar unanimity will be shown when the vote is taken at large. Let every member coöperate and vote promptly when the referendum vote slips and envelope are sent him. These slips will probably go into the mails shortly after the appearance of the July issue of this journal, in which the referendum will be further discussed. By voting promptly at that time the work of reorganization will be expedited and the way be paved for a greater future for the California Medical Association, a something to which each of us is pledged.

THE FIFTY-EIGHTH ANNUAL SESSION AT CORONADO–SAN DIEGO

Thanks of the Association to San Diego Colleagues.—To the members of the San Diego County Medical Association, individually and collectively, go the thanks of the California Medical Association and especially of those of its members who were so fortunate to be present and take part in the scientific and entertainment features which were provided.

The program of this fifty-eighth annual session which was printed in the May issue of California and Western Medicine, was an indication of the interesting experience which was to be offered to all those who traveled south to the border of Old Mexico, to become the guests of our San Diego colleagues. Excellent as the preliminary program appeared, it was outdone in actual performance. The California Medical Association may be said to be a stronger state unit because of this session, for the general meetings and those of the scientific sections measured up to a high standard.

* * *

Appreciation of the Guest Speakers.—Our Association expresses its deep appreciation to the guest speakers from other states, whose presence and contributions aided in making the session at Coronado such a success. The kindly, informal address of greeting to the House of Delegates by President William S. Thayer of the American Medical Association, in which he brought the good wishes of our national organization to our state unit, was much enjoyed, and his generous sentiments were fully reciprocated. The presence of these prominent colleagues from other portions of our country was not only a personal inspiration, but an incentive to increased endeavor on behalf of organized medicine. These busy colleagues were willing to leave their many home duties and responsibilities, at considerable cost in time and convenience, to bring to the members of the California Medical Association their messages of good will, and of viewpoints on problems of medical and scientific interest. They demonstrated by the same their belief in the value of organization to the medical profession. That these colleagues from afar off were willing to do this for us, should make those of us who are at times a bit laggard in making an effort to attend medical meetings resolve to do a wee bit better in the future.

* * *

Scientific and Entertainment Features of High Standard.—The worth of the scientific papers which were read, and the diversified and acceptable program of entertainment which was constantly presented, it is not possible to here discuss in detail. The pages of this journal during the coming year will bring to its readers the printed expression of the scientific contributions. Returning members from the session will spread by word of mouth the glad tidings of the good times which

were enjoyed through the entertainment features provided by the San Diego County Medical Society.

* * *

Excellent Innovation in Time Allotments in Program.—One outstanding change which was put to the test at Coronado was the plan submitted to the Council by the San Diego committee of arrangements, in which it was recommended that the scientific meetings of the session all begin promptly at nine o'clock, with prompt adjournment at one o'clock; to be followed by luncheon, the remainder of the afternoons to be given over to entertainment. It is gratifying to record that this plan worked out in splendid fashion. The meetings of the scientific sections moved forward with as much alertness and profit as at any time in the past when morning and afternoon meetings were the vogue. In addition, visiting members and their ladies were able to far more easily take part in the good fellowship features which were provided in the entertainment program.

It is hoped this innovation in procedure will be carried out in the future. The knowledge that the sections will adjourn promptly at one o'clock will be a stimulus to section officers and members to call their meetings to order promptly, to hold essayists and discussers down to the time allotments and other rules provided in the by-laws of the Association; and by transacting section proceedings in businesslike fashion will make for increasingly good scientific programs.

The success of this plan of procedure was so marked that the wonder is that it had never been tried out before. Evidently in our past endeavors to be thoroughly instructive to one another we became parties to meeting methods that consumed time somewhat out of proportion to the good to be accomplished. At any rate, in the future it is probable that an increasing number of members will stand firm for the plan of intensive application to the scientific programs in the mornings, and equally intensive effort in the entertainment features for each afternoon. It stands to reason that if the scientific aims of our State Association can be adequately served by such a time allotment that the interests of organized medicine will be promoted through the personal contacts made possible in daily afternoon entertainment programs. Those members who were present at San Diego seemed unanimously in favor of the new plan. Properly carried out, it should, year by year, make for an extra large attendance at our annual sessions.

* * *

Thanks to Retiring, and Greetings to New Officers.—Some words of greeting for services rendered by retiring officers may well have a place here. The California Medical Association is appreciative of the services of all its retiring executive and other representatives, from retiring President William H. Kiger down, who during the last twelve months have given generously of their best in order to aid the California Medical Association.

It welcomes its new president, Morton R. Gibbons, of San Francisco, with feelings of special regard and kindly wishes, because of the part which his grandfather, Henry Gibbons, as president of our State Association in 1857 and again in 1872, his great-uncle, William P. Gibbons, as our president in 1886, and his father, Henry Gibbons, Jr., in 1897, also as president of our State Association, played in the development of organized medicine in California. His is a unique professional lineage, and one that would probably be most difficult to duplicate, even in state medical associations east of the Mississippi, where the history of organized medicine goes back to an earlier period than in California. We are all of us proud that in his family, in which there have been disciples of Aesculapius in different generations, that his forbears should have all been imbued with a high sense of obligation to serve in broad manner the best interests of the profession to which they had allied themselves.

To our new president-elect, Lyell C. Kinney, of San Diego, the hand of good fellowship is also extended. His service on the Council as the representative of the First Councilor District has long acquainted his fellow officers with his merits. The manner in which he directed the recent San Diego meeting arrangements is a further indication of his executive capacity. His professional worth brought to him the generous support of colleagues in San Diego and elsewhere who were familiar with his work. To him and other newly elected councilors and officers the Association extends its greetings and good wishes.

FORTY-EIGHTH CALIFORNIA LEGISLATURE—FINIS

General Record of the Forty-Eighth California Legislature.—On May 15 the Forty-Eighth California Legislature adjourned, after a ninety-nine-day session, one of the longest sessions of recent years. In common with other organizations, the members of the California Medical Association may now pause to make note of the constructive or destructive results on certain proposed public health legislation.

Thirty-eight state senators introduced 890 bills or proposed laws, 45 constitutional amendments, 41 concurrent resolutions, and 15 joint amendments. Eighty state assemblymen introduced 1196 bills, 39 constitutional amendments, 48 concurrent resolutions, and 22 joint resolutions. Of the grand total of more than 2000 bills which were introduced by senators and assemblymen, a total of 1110 went on to passage. The ninety-nine-day session of the legislators cost California, in legislative expenses, the sum of $536,482.04.

* * *

Public Health Bills Before the Legislature.—The March number of California and Western Medicine, pages 211-215, gave a summary of the numerous public health measures which had been introduced up to that time, and this column of the journal in the last several issues has discussed in detail several of the proposed measures

in which members of the California Medical Association had a special interest.

Among such were the Vocational Standards Bill, the State Medical Library Bill, the Basic Science Bill, the Nurses' Bills, the Lien Bills, and several measures having to do with amendments to the Medical Practice Act, and with expert medical testimony and the care of mental patients. Of these the Vocational Standards Bill went on to passage, and several of the amendments to the Medical Practice Act were also adopted. Most of the others went down to defeat.

* * *

Value of Analyzing What Happened.—Since experience is the best teacher, it should profit us somewhat, and make for better things at future sessions of the legislature if we stop and analyze some of the situations which arose. In that way some of our mistakes of judgment or procedure may be avoided two years hence, when the next legislature convenes, at which time our Association will be confronted again with the same avalanche of public health measures coming from out of the great unknown. At that time, just as has always been the case in the past, it may be taken for granted that in attempting to secure favorable legislative and gubernatorial approval of the few bills for which we will probably be the sponsors, we will be met with intriguing forces such as nullified some of our efforts in the present session.

* * *

Vocational Standards Department.—The bill creating this new state department has been quite fully discussed in this column. As originally drawn by the representatives of the administration, it was far from acceptable. Had the administration forces not consented to make modifications acceptable to the medical profession, the Council and Executive Committee of the California Medical Association were prepared to push through a program to have the members of the dental and pharmaceutical professions join with that of medicine in an effort to defeat the measure. The principle at stake was that the examining boards of these three professions should not have their standards or rights endangered by possible future action of a department head or director, who could be under the domination of political forces having little or no interest in the maintenance of standards, as the members of the professions of medicine, dentistry, and pharmacy understood these standards.

As regards this measure, the members of the California Board of Medical Examiners, being appointees of the present and former governors, were at a political disadvantage. Their battle was therefore taken over by the California Medical Association, whose members look upon the members of the state examining board as custodians or trustees to maintain the professional standards to which this Association subscribes.

Little more need be said of this Vocational Standards Bill. It passed in both Senate and Assembly and, having been signed by the Governor, will shortly take its place among our California laws. The officers of the California Medical Association and its component county medical societies will, of course, remain vigilant and be on guard to prevent any steps which would imperil professional standards.

* * *

The Basic Science Bill.—In previous issues were given the reasons why the Council and Executive Committee felt that this bill might well lie over for further study. The minutes of the House of Delegates, printed in the California Medical Association Department of this issue, contain a resolution introduced by instruction from the Council, approved by the Reference Committee, and ratified by the House of Delegates, which provides for a thorough study of both the Medical Practice Act of California and of a possible basic science law; so that steps may be taken in ample time to secure the passage of the same, if it be so decided, by either legislative or initiative procedure, according as future conclusions may indicate to be best. These important topics will be discussed in future issues of CALIFORNIA AND WESTERN MEDICINE. In the meantime any component county societies or members having suggestions thereon are urged to feel free to send their viewpoints to the central office of the Association.

* * *

The State Medical Library Bill.—The officers of the California Medical Association were of the opinion that a state medical library at Sacramento could be made to be a powerful factor in the maintenance of the standards of scientific medicine in California. This measure, which would have brought such a library into existence, became known as Senate Bill No. 842. This library bill died in the Assembly Committee on Governmental Efficiency and Economy.

Some comments on the difficulties which this bill encountered were here inserted, but, on further consideration, have been deleted. The career of the library bill will therefore be only briefly sketched at this time in this column.

* * *

The Official Record of Senate Bill No. 842.—The past history of the bill can be best gleaned by quoting from the *Senate Weekly History* of Friday, May 10, 1929. From this we quote:

842—Canepa, March 14—To Committee on Governmental Efficiency. An act to create a state medical library, to provide for the establishment and maintenance of said library as a part of the state library, to transfer and to set over to the State Medical Library Fund certain moneys.

March 14—Read first time. To printer.

March 15—From printer. To committee.

March 28—From committee with recommendation: Be amended, and be re-referred to Committee on Governmental Efficiency.

March 29—Read second time. Amended. To printer. From printer. Re-referred to Committee on Governmental Efficiency.

April 26—From committee with recommendation: Do pass.

April 29—Read second time. To engrossment, and third reading.

May 1—Reported correctly engrossed.

May 2—Read third time, passed, title approved. To Assembly.

May 10—In Assembly. Read first time. To Committee on Governmental Efficiency and Economy. From committee with recommendation: Do pass.

From the above it is noted that the state medical library bill was introduced on March 14, that it was successful in passage through the Senate on May 2, and that it died in the Assembly Committee on Governmental Efficiency on May 15, the date of adjournment of the legislature.

* * *

The California Medical Association's Proposal of a State Medical Library.—A state medical library was first broached in an editorial in the November issue of California and Western Medicine and received the favorable vote of the Council and Executive Committee of the California Medical Association. Unfortunately the bill, as introduced in January and known as Assembly Bill No. 488, was written as an amendment to the State Medical Practice Act, instead of in the form outlined in the November editorial. As a consequence it was necessary to let that bill die, and to introduce a new bill as Senate Bill No. 842, in the second portion of the session. That delay was a serious handicap.

Nevertheless, the measure was pushed through the Senate, was referred to the Assembly, but in the legislative jam following the Judge Hardy impeachment proceedings, was hard to get out of committee for final action by the Assembly. The bill died in committee. That is the story.

* * *

The Library Bill Had the Official Endorsement of the California Medical Association.—The state medical library bill had the practically unanimous support of the Council and of the Executive and Legislative Committees of the California Medical Association. Component county medical societies were also in favor thereof. At the fifty-eighth annual session at San Diego the Association, through its House of Delegates, unanimously voted that a telegram of endorsement of the measure be sent to every assemblyman. That was done on Monday, May 6, or nine days before the legislature adjourned.

All of which means that the California Medical Association, an organization of almost five thousand licensed practitioners, whose members, through annual state occupation or license fees against themselves, had helped accumulate a big reserve fund to the credit of the California State Board of Medical Examiners, through its official bodies and itself in annual convention assembled, had endorsed and had gone on record in favor of having S. B. No. 842 become a law.

In spite of this, S. B. No. 842 did not go on to passage. Instead, it went down to defeat.

* * *

The Library Bill Will Reappear at the Next Legislature.—More might be written concerning this bill, which ran through the whole range of permissible mistakes, as well as of under-cover opposition, which so frequently are encountered during legislative sessions.

The consolation for the moment is that no immediate great harm has been done. During the next two years the bill can be gone over and a firmer foundation laid for its passage. The money will still be in the reserve fund of the California State Board of Medical Examiners. Coming as that money did, from a special extra tax on doctors who pay all other taxes, and being levied for special purposes—the maintenance of medical standards—it must be used for those purposes. Doctor Pinkham's letter, printed in the Miscellany Department, tells of the major sources of this reserve fund.

This money, in the maintenance of professional standards, could be used to good advantage to establish a state medical library. That library should be at Sacramento, the seat of government of California, and no medical school or schools should look at these funds with envious eyes. A state medical library administered in the broadest, nonsectarian manner possible, to which every doctor of medicine in California could turn without the least hesitation, is what is desired. Any attempt to directly or indirectly divert the funds, no matter by whom sponsored, is almost certain to meet with very considerable opposition.

For the time being, the component county societies can profit from this and similar legislative experiences and, through proper committees, be on the alert when the primaries and final elections of assemblymen and senators and other state officers take place two years hence. With proper forethought and judgment, and with righteous causes, and with wise committees on legislation and public policy, the California Medical Association should and will be able to safeguard the rights of its members and the public health. All that is needed is to organize our forces and influences, and then speak and act in the language which candidates for public office so well understand.

Recognizing Active Tuberculosis in Its Early Stages.—Speaking of the early recognition of pulmonary tuberculosis, and especially urging that the possibility of active tuberculosis be not dismissed because the patient appears well nourished and vigorous and has no elevation of temperature, Krause says:

"Notwithstanding our long strides in the century since Bayle, we are now and again impressed with the traces of the old point of view that remain today—to the great detriment of good diagnosis in tuberculosis; only now attention is centered on body temperature. And, just as we so frequently read of patients under treatment having their classification changed to quiescent, or arrested, or inactive, upon the return of temperature to normal, and ostensibly on this basis alone, so we find numbers of physicians apparently unable to comprehend tuberculosis as active unless and until the temperature is elevated. It will mark a great advance in diagnosis when the generality of medical men give up the idea that elevation of temperature is the chief and most significant symptom of pulmonary tuberculosis or the *sine qua non* of activity.—*City of New York Department of Health Weekly Bulletin,* April 1929.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Dermatology

Yeast Fungi.—The general family of yeast-like fungi, which are included in the genus *Blastomycoides,* are responsible for several definitely surgical conditions. These are usually recognized as of mycotic origin only by cultural methods as done by experts. For instance, Castellani cites a case of severe and continuous furunculosis, in which ordinary cultures disclosed only *Staphylococcus aureus,* but cultural methods calculated to determine the presence of *Blastomycosis,* finally, with difficulty, were successful.

There are other infections which, clinically, have no resemblance to typical *Blastomycosis* of the type which, when present, raise roundish or oval patches with a verrucous or papillomatous surface, but which, by cultural methods, are definitely established as being basically caused by some member of the *Blastomycosis* family.

The clinical entities, which are included in the general term of *Blastomycosis,* were formerly limited to the typical Gilchrist type which usually, at first, affects the skin. Verrucoid lesions are the essential characteristic. In later stages the internal organs may be attacked or multiple abscesses may exist or discharge through sinuses.

Coccidioides, from a clinical point of view, is separate from the Gilchrist type of *Blastomycosis* and is often mistaken for some simpler surgical condition which is not cured by ordinary surgical methods. Biologically it is definitely a member of the *Blastomycosis* family, and by some authorities is technically named *Blastomycosis ulcerativa profunda.*

The forms of *Blastomycosis* which are found in lesions which, from a clinical point of view are boils or carbuncles, are not as a rule classified as *Blastomycosis* by clinicians. Biologically it is well for a surgeon to know that a stubborn boil or series of boils or a stubborn carbuncle can possibly be caused by a yeast-like fungus. Even a stubborn crusty impetigoid lesion can be due to the *Blastomycetia pyosis,* which is biologically a *Blastomycosis,* but clinically the lesion would never be so classified. Another form due to a different variety of the genus is a paronychia, which at times comes to suppuration, but sometimes remains painful and inflamed for months without any suppuration.

Still further down the line of clinical severity and beyond the limits of surgical classification, the clinical and biological varieties run parallel. That is, each clinical variety, within certain limits, has a definite biological genus as its causative factor, and each genus has some definite cultural characteristic.

Irving Bancroft, Los Angeles.

Urology

Urography.—The urologist relies to such an extent on roentgenography as a diagnostic aid that the degree of perfection which urological diagnosis has attained would have been impossible without this aid. The interrelation has become so fixed that the term "urography" is used to denote radiography of the urinary organs or, in a narrower sense, the rendering of the urinary tract opaque by the injection of liquid which casts a shadow in the radiograph.

The pyeloureterogram, which is obtained after injecting 12 per cent sodium iodid or other opaque solution into the renal pelvis and ureter through the ureteral catheter, shows the outline of the pelvis and ureter. The important pathologic conditions in which such a urogram is an aid to diagnosis are:

1. *Renal or Ureteral Stone.*—If a shadow demonstrated in a previous radiograph and simulating a renal or ureteral stone is not included in the outline of the pyeloureterogram, and is not near enough to the pyelogram to be in the kidney parenchyma, it is interpreted as not being a urinary calculus. Every urologist has seen patients who have been operated on for a supposed stone in the ureter or kidney when there was no stone there. In practically every one of these cases a preoperative pyeloureterogram would have demonstrated the suspected shadow to have been outside the urinary tract.

2. *Dilatation from Obstruction.*—The ureter and the kidney pelvis and calices show a dilatation regular in outline, with a corresponding thinning of the renal parenchyma. The normal cupping of the terminal irregularities of the minor calices is obliterated. This obliteration occurs in most pathologic deformities of the renal pelvis. The etiology—ptosis, ureteral kink or stricture, or other cause of the hydronephrosis—is also frequently demonstrated by the pyeloureterogram.

3. *Deformity from Inflammation.*—Inflammatory dilatation is characterized by a more irregular, moth-eaten outline, and the function of such a pyonephrotic kidney can be estimated by the amount of destruction of renal tissue shown in the pyelogram. Sometimes a kidney with a long-standing chronic infection will show an encroachment on the calices and pelvis, by the cicatrix which forms after the destruction of the kidney tissue.

4. *Deformity from Tumor.*—Neoplasm such as hypernephroma or carcinoma gives the characteristic "spider leg" deformity—a lengthening and narrowing of the pelvis and calices—if the cortex is involved; or a partial or complete obliteration of the calices and pelvis if the origin of the tumor is in or near the pelvis. Polycystic

kidney shows encroachment in the form of multiple concave outlines in the pelvis and calices.

The cystogram, which is obtained after filling the bladder with an x-ray opaque solution such as 10 per cent neosilvol, is used principally for demonstrating the size, shape, and position of a diverticulum. It also aids in the diagnosis of conditions such as bladder tumors, bladder neck obstruction, and cord bladders.

The reader is referred to two recent most excellent works on the subject by Braasch [1] and by Young and Waters.[2]

Summary.—Urography, or radiography of the urinary tract is an invaluable asset to urologic diagnosis. A urogram should be taken on every case in which the diagnosis is in doubt.. By doing this many mistaken diagnoses and many unnecessary operations will be avoided.

Roger W. Barnes, Los Angeles.

REFERENCES

1. Braasch, W. H.: Urography, 1927 ed., W. B. Saunders Company.
2. Young, H. H., and Waters, C. A.: Urological Radiology.

Orthopedics

Indications for Natural Heliotherapy.—The physiological effects and the modes of application of sun-air therapy have been frequently described in medical and lay literature. The indications of heliotherapy may briefly be outlined as follows:

The indications for solar radiation cannot be laid down by enumerating individual diseases. Heliotherapy should find application where, from theoretical consideration and from practical experience, it can be regarded and has proven to be beneficial and effective. The claim of the healing power of solar radiation in so-called surgical tuberculosis is at present admitted by the highest medical authorities. The controversy between those who advocate operative interference and the group who favor conservative sun-air treatment in surgical tuberculous lesions still goes on. The adherents to the radical procedures, however, admit that heliotherapy is beneficial during the period of postoperative convalescence or as a preparatory measure to raise the body resistance to build up the patient's general condition. Surgery in an individual, especially in young persons in poor general condition with the disease in an active stage, is but infrequently performed even by the most radical advocates of the scalpel. To increase resistance, strengthen musculature and tonicity, nothing equals systematic heliotherapy. Preoperative solar therapy may prove beneficial beyond expectation so that a contemplated operation may no longer be necessary. The contention of men like Freiberg, Meyer, and a score of other writers, that surgery and heliotherapy have each their special indications, must be accepted as true. Each procedure must be administered, not to exclude, but to supplement the other.

Sun radiation has been proven of inestimable value in calcium deficiencies such as rickets, osteomalacia and delayed union of fractures, the healing of which is enhanced by the rise of the constitutional resistance; also in localized conditions such as wounds of various types, severe traumatization of soft tissues, ulcerations due to circulatory or neurotrophic disturbance and infected wounds. Greatly benefited are many pathological manifestations which are the outcome of systemic infection. Here may be mentioned chronic osteomyelitis, chronic arthritis, and lesions of syphilis refractory to specific treatment. In orthopedic practice heliotherapy finds indication in the deficiency diseases of the type of Osgood-Schlatter, Legg-Perthe, Freiberg, Koehler, and other conditions classed as osteochondritis, as well as in tuberculous bone and joint affections and in chronic arthritis. Also in myasthenia, muscle atrophy, and paralysis, has the muscle-building effect of the sun ray been of real value.

The sun-air therapy must not be regarded as a specific but rather as an activating agent, as a generalized therapy. Its administration must be based upon the assumption that the local lesion is but a manifestation of a constitutional disease or deficiency. On the basis of this assumption, heliotherapy may well be adopted as an adjunct to other recognized methods of treatment.

A. Gottlieb, Los Angeles.

Bacteriology

The Newer Immunochemistry.—The older immunophysiology was based largely on the assumption that an injected antigen stimulates the multiplication and desquamation of a hypothetical corresponding specific antibody or side-chain, with which the fixed tissues were assumed to be miraculously endowed. The trend of the newer immunology is admirably illustrated by recent studies by Kryshanowski of the Bacteriological Institute, Department of Health, Ufa, Russia.[1]

Director Kryshanowski confirms the previous conclusions of Walbum [2] that the living diphtheria baccillus does not secrete a preformed toxin. The toxin of current nomenclature is a secondary product, formed by some unknown chemical reaction between a nontoxic bacterial product ("protoxin") and the surrounding medium. He finds that *in vitro* this "protoxin" reacts with different serum proteins to produce toxic, nontoxic, or antitoxic products, depending upon the protein used. With serum albumin, for example, a strong toxin is formed. With certain serum globulins a corresponding specific antitoxin is generated. With intermediary proteins a nontoxic or neutral product may result. He believes the same types of reaction take place in the animal body.

Findings of this kind have led heterodox immunologists to wonder if in time it may not be shown that the main seat of antibody formation may not be in the blood stream, biochemical processes readily duplicated in the test tube.

W. H. Manwaring, Stanford University.

REFERENCES

1. Kryshanowski, W. N.: Centralbl. f. Bakteriol., Vol. cx, 1929.
2. Walbum, L. E.: Biochem. Ztschr., Vol. cxxxiv, 1923.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

MORTON R. GIBBONS.....President
LYLE C. KINNEY.....President-Elect
EMMA W. POPE.....Secretary

OFFICIAL NOTICES

Fall Meeting of the Council.—The next meeting of the Council will be held at Los Angeles, Saturday, September 28, 1929.

Registration at Coronado.—Coronado's registration was 1503; 966 of whom were doctors of medicine and 826 members of the California Medical Association.

This exceeds any previous registration by 302 and represents actual attendance at the meeting. Since San Diego County numbers only 223 members, had every San Diego County member registered, still the total registration of nonresident attendants at the meeting exceeded any previous record.

Del Monte Meeting, April 28 to May 1, 1930.—Del Monte has been selected for the next annual meeting place. There is divided sentiment regarding meetings in the larger cities. The interest of physicians who reside in the city chosen is of necessity divided between the care of patients and attendance at the various sessions. At Coronado, Del Monte, Yosemite, practically all members who are in attendance have severed their interest in practice for a certain definite number of days and are in spirit and body attending that particular meeting.

Newly Elected Officers.—Attention is again called to advertisement pages 2 and 4 on which are regularly published the names of state and county officers and of the section chairmen and secretaries.

To carry out the provisions of the present Constitution and By-Laws, adopted at the second House of Delegates meeting, terms of office have in several instances been changed in date, that three district councilors and two councilors-at-large may be elected each year.

The following is a list of the present officers and councilors:

OFFICERS

President.....Morton R. Gibbons, San Francisco
President-elect.....Lyell C. Kinney, San Diego
Speaker of House of Delegates.....Edward M. Pallette, Los Angeles
Vice-Speaker of House of Delegates.....John H. Graves, San Francisco
Secretary-Treasurer.....Emma W. Pope, San Francisco
Editors.....George H. Kress, Los Angeles; Emma W. Pope, San Francisco

DISTRICT COUNCILORS

First District—Mott H. Arnold, San Diego.....1932
Second District—William Duffield, Los Angeles.....1930
Third District—Gayle G. Moseley, Redlands.....1931
Fourth District—Fred R. De Lappe, Modesto.....1932
Fifth District—Alfred L. Phillips, Santa Cruz.....1930
Sixth District—Walter B. Coffey, San Francisco.....1931
Seventh District—Oliver D. Hamlin, Oakland.....1932
Eighth District—Junius B. Harris, Sacramento.....1930
Ninth District—Henry S. Rogers, Petaluma.....1931

COUNCILORS-AT-LARGE

George G. Hunter, Los Angeles.....1932
Ruggles A. Cushman, Santa Ana.....1930
George H. Kress, Los Angeles.....1931
Joseph Catton, San Francisco.....1932
T. Henshaw Kelly, San Francisco.....1930
Robert A. Peers, Colfax.....1931

Districts.—Attention of the members is called to the revision of councilor districts. A full report of this will appear in the minutes of the Council and House of Delegates.

The table below furnishes important data.

Standing Committees.—Chapter VIII, Section 1 of the By-Laws of the California Medical Association reads:

"The standing committees of this Association shall be as follows:

(a) A Committee on Associated and Affiliated Societies.

(b) A Committee on Extension Lectures.

REVISION OF COUNCILOR DISTRICTS*

District	No. of Delegates	No. of Counties	No. of Societies	No. of Members	Counties Comprising Each District
1	8	4	4	361	Imperial, Orange, Riverside, San Diego
2	32	1	1	1620	Los Angeles
3	6	5	5	246	Kern, San Bernardino, San Luis Obispo, Santa Barbara, Ventura
4	8	12	6	285	Calaveras, Fresno, Inyo, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, Tuolumne
5	7	5	5	234	Monterey, San Benito, San Mateo, Santa Clara, Santa Cruz
6	18	1	1	884	San Francisco
7	9	2	2	422	Alameda and Contra Costa
8	10	18	9	246	Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter, Tehama, Yolo, Yuba
9	7	10	7	168	Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, Siskiyou, Solano, Sonoma, Trinity

* Based on membership of, and on delegates elected in, 1928.

(c) A Committee on Health and Public Instruction.

(d) A Committee on Hospitals, Dispensaries, and Clinics.

(e) A Committee on Industrial Medical Practice.

(f) A Committee on Medical Economics.

(g) A Committee on Medical Education and Hospitals.

(h) A Committee on Medical Defense.

(i) A Committee on Membership and Organization.

(j) A Committee on Necrology.

(k) A Committee on Publications.

(l) A Committee on Public Policy.

(m) A Committee on Scientific Work (specially provided for in Constitution).

"Chapter VIII, Section 2. How Elected—Terms of Office.

"Unless otherwise provided in these By-Laws each of the standing committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be nominated and elected annually by the Council, by and with the approval of the House of Delegates, provided that at the annual session at which this Constitution is adopted, one member of each of the foregoing committees shall be elected for a term of three years, one member for two years, and one member for one year, their successors to be elected in proper and regular annual sequence thereafter."

To contact more easily with the Council, in most cases a member of the Council was elected to serve for a term of one year on each of the above committees. The chairman is selected by the members of the committee.

The appointment of the following standing committees automatically dissolves all previous committees.

STANDING COMMITTEES

Committee on Associate and Affiliate Societies

Harold A. Thompson, San Diego....1932
William Bowman, Los Angeles....1931
T. Henshaw Kelly, San Francisco....1930

Committee on Extension Lectures

James F. Churchill, San Diego....1932
Robert T. Legge, Berkeley....1931
Robert A. Peers, Colfax....1930

Committee on Health and Public Instruction

Fred B. Clarke, Long Beach....1932
Gertrude Moore, Oakland....1931
Henry S. Rogers, Petaluma....1930

Committee on Hospitals, Dispensaries, and Clinics

John C. Ruddock, Los Angeles....1932
Walter B. Coffey, San Francisco....1931
Gayle G. Moseley, Redlands....1930

Committee on Industrial Medical Practice

Packard Thurber, Los Angeles....1932
Ross W. Harbaugh, San Francisco....1931
Mott H. Arnold, San Diego....1930

Committee on Medical Economics

John H. Graves, San Francisco....1932
William T. McArthur, Los Angeles....1931
Ruggles A. Cushman, Santa Ana....1930

Committee on Medical Education and Hospitals

George Dock, Pasadena....1932
H. A. L. Ryfkogel, San Francisco....1931
George G. Hunter, Los Angeles....1930

Committee on Medical Defense

George G. Reinle, Oakland....1932
Dwight H. Trowbridge, Fresno....1931
Gayle G. Moseley, Redlands....1930

Committee on Membership and Organization

Harlan Shoemaker, Los Angeles....1932
LeRoy Brooks, San Francisco....1931
Jesse W. Barnes, Stockton....1930

Committee on Necrology

Charles D. Ball, Santa Ana....1932
Percy T. Phillips, Santa Cruz....1931
Emmet Rixford, San Francisco....1930

Committee on Publications

Alfred C. Reed, San Francisco....1932
Percy T. Magan, Los Angeles....1931
Frederick F. Gundrum, Sacramento....1930

Committee on Public Policy

Junius B. Harris (chairman), Sacramento....1932
William Duffield, Los Angeles....1931
Joseph Catton, San Francisco....1930

Committee on Scientific Work

Emma W. Pope (chairman), San Francisco
Karl Schaupp, San Francisco....1932
Lemuel P. Adams, Oakland....1931
Robert V. Day, Los Angeles....1930
Ernest H. Falconer,* San Francisco....1930
Dexter N. Richards,* Oakland....1930

MINUTES OF THE HOUSE OF DELEGATES, FIFTY-EIGHTH ANNUAL SESSION OF THE CALIFORNIA MEDICAL ASSOCIATION

First Meeting

Held in the ballroom, Hotel del Coronado, Coronado Beach, California, Monday, May 6, 1929, at 8 p. m.

I. **Call to Order.**—The meeting was called to order by President William H. Kiger of Los Angeles.

* * *

II. **Roll Call.**—The secretary called the roll; ninety-eight (98) members of the House of Delegates comprising officers, councilors, and delegates were seated out of a total membership of one hundred and twenty-three (123), and the president declared a quorum present.

The chair stated that it was the custom for the president to make a report to the House of Delegates, but that, inasmuch as there was so much business to be transacted and the report would necessarily be more or less of a repetition of the reports of the Council and the secretary, he had decided to eliminate it and proceed with other business.

* * *

III. **Appointment of the Reference Committee.**—The chair announced that he had appointed as members of the Reference Committee, Junius B. Harris of Sacramento, chairman; Edward N. Ewer of Oakland and Clarence G. Toland of Los Angeles.

* * *

IV. **Report of the Council.**—At the request of the chair, Oliver D. Hamlin of Oakland, chairman of the Council, then presented the following report of the Council:

COUNCIL MEETINGS FROM APRIL 1928 TO APRIL 1929

The Council has held seven meetings during the past year and the Executive Committee has held eight meetings, making a total of fifteen meetings of the officers of the Association and councilors.

FUNDS OF THE ASSOCIATION

The auditor's report, which will be read at this meeting, shows a reserve to the credit of the Association. It is fitting that an Association of almost five thousand members have a reserve that will permit growth and progress, and the carrying out of any policy along those lines that may hereafter be inaugurated by your House of Delegates.

* Secretary of the Sections on General Medicine and General Surgery.

ANNUAL ASSESSMENT

The Council recommends, therefore, that the annual assessment remain the same as at present, $10.

INVESTMENT OF CALIFORNIA MEDICAL ASSOCIATION FUNDS

For the safety of the funds of the Association, no large sum has been placed in any one savings bank. They have been distributed among the best banking houses in San Francisco and Los Angeles. No investment of funds other than in savings banks has been authorized by the Council.

CONSTITUTION AND BY-LAWS

No constitution and by-laws was adopted at the 1928 House of Delegates. In accordance with action taken by the delegates at that time, a special committee was appointed by the president and the president-elect to consider the two drafts submitted at the 1928 meeting. With a few minor changes, this committee recommends the adoption of the draft prepared by the former Committee on Revision of the Constitution and By-Laws, which constitution is based upon the model form recommended by the American Medical Association. The Enabling Act, if adopted by the 1929 House of Delegates, will permit the introduction of any amendments desired and action on these amendments at the end of twenty-four hours. Final adoption of the Constitution and By-Laws rests with the House of Delegates.

CLINICAL AND RESEARCH PRIZES

No paper has been submitted for either clinical or research prize. Six papers were submitted during 1928 and three during 1927.

The Council recommends that this seeming lack of interest be not taken as final and that the prize competition remain open for another year.

MEMBERSHIP

The gain in membership has increased during the past year. While it is true that only 50 per cent of the licensed practitioners of medicine in California are affiliated with the Association, it is to be remembered that in the 50 per cent of unaffiliated doctors are included homeopaths, eclectics, and graduates of exclusive schools of medicine as well as graduates of regular schools of medicine and also that California is the mecca for physicians in search of climate and health, many of whom are not actively practicing medicine. Three of our county societies accept members only after they have lived in the county six months. The proposed constitution and by-laws provides that no member shall be eligible for election in a component county society who has not actually established his residence in the county for at least six months prior to the date on which application for such membership is voted upon.

REDISTRICTING THE ASSOCIATION

A committee was appointed at the last annual meeting to submit a report showing plans for redistricting the Association. The committee has endeavored to more equally divide the councilor districts according to the size of the county covered and the number of members included.

At its one hundred and seventy-ninth meeting on January 12, the Council redistricted the Association in accordance with the report of the Committee on Redistricting, Dr. Henry Rogers, chairman. This redistricting is in accordance with the printed slips which have been presented to you at this meeting.

On careful study and investigation, one thing stood out very clearly and that is that the smaller counties prefer to be grouped together and not placed in districts with larger cities. They feel that they have no chance of representation on the Council when grouped with larger cities because the men are usually chosen from the city.

THE WOMAN'S AUXILIARY

The Council and the House of Delegates have approved the formation of a Woman's Auxiliary. A set of rules governing the formation have been adopted by the Council. Each county secretary has been asked to appoint three representative delegates from his component society to attend the organization meeting of the Woman's Auxiliary at Coronado. Following the formation of the State Auxiliary, the delegates will return to their counties prepared to organize the county auxiliaries throughout California.

LEGISLATION

This year's session of the California Legislature brought many problems to the Council. The proposed Professional Standards Department has been discussed at length in our state journal and in the special leaflet which went to the members of our Association. The same may be said of the state medical library, the basic science act, the nurses, and other bills in which the medical profession has a special interest. In safeguarding the interests of our profession and of the public health, it was necessary for many officers of the Association to give special service and time. In addition to the work of your Legislative and Executive committees, the work of Doctor Harris, whose residence in Sacramento makes him an invaluable member of the Legislative Committee, and of Doctor Catton and Doctor Kelly, residents of San Francisco, who on several occasions have spent from one to three days in Sacramento in order to watch measures important to the medical profession during critical periods, deserve special mention.

Certainly it is true, that with the passing of the years, the need of alertness does not lessen when our lawmakers are in session. This is no reflection on the integrity or ability of our legislators, but is simply to be taken as an expression of the complexity of our modern-day living and the many interests which, with good intentions or otherwise, seek to inject themselves into our lawmaking bodies. This year's experience again emphasized that, as in business, it is most necessary to have centralized authority and unity of action if the interests of the medical profession are to be adequately protected. The extent and manner in which aid from nonprofessional or lay sources is to be sought and relied upon when our legislature is in session is one of the problems which the members of your Council have seriously discussed. At this time the Council has no solution other than to advise that all members of the Association have a responsibility in these matters, that the general officers such as the Council and its Executive Committee have a very special responsibility and that these administrative officers must be alert to maintain a firm, efficient, dignified, unified and nonpartisan presentation of the rights of the medical profession, in relation to its own and public health interests.

The legislature is still in session and will not adjourn until May 15. Vigilance and whole-hearted and united endeavor, combined with clarity of vision, will be required from the Association officers and members up to the day the present legislature adjourns.

Once the legislative session is over, it will be well for the Council and the component county societies to give serious consideration to medical licensure and other measures which will come up two years hence, when the next legislature meets or, in the case of any initiative measures, within a year from this time.

The report of the Council was referred to the Reference Committee.

* * *

V. **Report of the Committee on Scientific Program.**—At the request of the chair, Emma W. Pope of San Francisco, chairman of the Committee on Scientific Program, then read the following report:

It seems anomalous that the splendid work done in the preparation of the annual program should each year be reported by a chairman who has taken the smallest part in the actual planning of that program, either by selection of the speakers or of the various subjects discussed. The officers of the sections have determined the programs of the sections meetings; the San Diego Arrangements Committee has planned the programs of the general meetings. To be sure the Program Committee has again met at Santa Barbara with both the section officers and the members of the Arrangements Committee, but only to listen to reports of the work already done and to assist in a unification of the entire program.

The thanks of the Association are, therefore, extended to the section officers and to the Committee on Arrangements. Their duties are not few; the correspondence entailed is voluminous; the responsibility of decision is not light.

Some regular rotation and advancement in office should be provided by each section that the experience gained by actual service may be kept available for each newly elected secretary. The term of office in the case of an efficient secretary could, with benefit to the Association, be extended beyond the usual year of service.

Since California and Western Medicine publishes the greater number of articles read at any annual meeting, any movement aimed to better the quality of material presented is of distinct advantage to the official organ of the California Medical Association and to the readers of the journal.

The Arrangements Committee have provided most able speakers for the general meetings. The Association are greatly appreciative and desire to express their heartiest thanks to these invited guests who have so largely contributed to the success of the Coronado meeting.

The Report of the Committee on Scientific Program was referred to the Reference Committee.

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VI. **Report of the Auditing Committee.**—At the request of the chair, T. Henshaw Kelly of San Francisco, chairman of the Auditing Committee, then read excerpts from the audit of the books of the Association and filed the full audit with the secretary.

The report of the Auditing Committee was referred to the Reference Committee.

* * *

VII. **Report of the Secretary.**—At the request of the chair, Emma W. Pope of San Francisco then presented the report of the secretary as follows:

WORK OF CENTRAL OFFICE

The detailed reports of the chairman of the Council, of the chairman of the Auditing Committee, and of the editors, leave a very limited survey of the actual work done in the state office to be covered in the report of the secretary. The state office, however, must be visualized as a workshop, wherein are kept the minutes, records, and correspondence referred to in the report of the Council, and the Executive Committee, and financial accounts referred to in the auditor's reports, and through which passes the large correspondence necessitated by the editing of California and Western Medicine and the handling of its advertising, to realize that the activities enumerated in the report of the secretary in no way cover the entire activities of the state office.

Four assistants divide the office work and each is conversant with the service of the other. The bookkeeper has been with the California Medical Association twelve years, one stenographic assistant seven years, and the other three years. This length of service coupled with the personal interest and an understanding of the entire office work is largely responsible for the ability of this limited number of assistants to accomplish results that in former years have required a larger staff of assistants.

MEMBERSHIP

The net gain in membership in 1928 was 307, as against a net increase in 1927 of 114. The actual number of new members was 453, which number was reduced to 307 by the death of fifty-eight of our members, by the resignation of eight, and the delinquency of eighty.

FINANCES

The auditor's report shows the Association reserve has grown. In 1919, forty-eight years after the formation of the medical association of California, the secretary reported: "For the first time the State Medical Society is out of debt at the end of the fiscal year, and has in actual cash more than $2000 to its credit." Those of you who listen to the auditor's report will realize that at this meeting, only a decade later, the California Medical Association has a reserve that annually nets an interest in excess of the principle so proudly reported by Dr. Saxton Pope ten years ago. Financially the California Medical Association has made progress.

That the dues which have permitted this progress are not disproportionate the following comparative assessment shows: An item in the March issue gave the cost of an annual dinner of a component county society as exactly equal to the yearly cost of membership in the State Association. A recent editorial in the March Indiana journal read: "We learn that six state medical associations have annual dues of $25 or more, and one state charges its members $50 per year." We have just received information that the Idaho State Medical Society has reduced its annual dues from $60 to $50 a year. It would seem that California, with all her prosperity, is traveling a snail's pace.

UNITY

Two years have passed since any letter antagonistic to the work of the Association has been received at the office. The helpful coöperation of county secretaries with the state office has had much to do with this harmony. The yearly luncheon, at which county secretaries meet with the members of the Council and are given a very clear understanding of the work of the Association, has done much to eliminate misunderstanding. The information there obtained goes back unwarped to the county membership; and county secretaries, acting as liaison officers, bring the problems of the county society to the attention of the Council.

PLACEMENT BUREAU

The society continues its placement service to the members. In 1928 twenty physicians, eight physiotherapists and technicians, and thirty office assistants and nurses were placed. No work the Association does more directly impresses its members with its practical value. While the work entails correspondence, telephone calls, and telegrams, it is entirely gratuitous and wholly impersonal. All applicants listed are advised of each opening as it comes in. All who ask for physicians are given the full list on file. Decision and choice then rest with those so brought together.

EXTENSION LECTURES

County secretaries report quite regularly the names of invited speakers from the Extension Service in their monthly reports as having been present at the regular meeting. These frequent calls upon nonmembers of the county societies give a new interest to county meetings. The Extension Lecture Service becomes a form of graduate medicine; for where the members cannot go to the teaching centers, specialists in various departments can go to them. While the Placement Bureau benefits only a limited number, this Extension Bureau is helpful to a much larger group of our members.

DIRECTORY

The fourth annual directory, sent out on January 1, added new information to that of previous years.

ADDRESSOGRAPH

The purchase of an addressograph, authorized by the Council, has made it possible to reach the entire

membership by letter in matters of importance to the State Association in a limited number of hours. This service will be kept to date and is available to our members and advertisers at a nominal cost.

COUNTY SECRETARIES

County secretaries are very evidently chosen because of special ability and industry and interest in the office. Lassen-Plumas, San Benito, Tehama, and Solano have reported 100 per cent payment of dues. Since a chain is only as strong as its connecting links, the growing strength and activity of the various component societies should be a source of gratification to the California Medical Association.

The report of the secretary was referred to the Reference Committee.

* * *

VIII. **Report of the Editors.**—At the request of the chair, George H. Kress of Los Angeles then presented the following report on behalf of the editors:

Your editors beg leave to submit herewith their report concerning California and Western Medicine to cover the period since the last annual session at Sacramento.

During the present year no changes of major import have been made in the typographical make-up of California and Western Medicine. When your present editors took over the editorial management of your journal, they determined that it would be a distinct advantage if a definite and a somewhat permanent form of make-up could be established for the official publication of the Association. Accordingly the major departments which constitute the present form were instituted, and a definite place assigned each such department. It was felt that California and Western Medicine would thus take on a form that could be easily consulted, and that would make its pages more readable and interesting to the members of the California Medical Association. The passage of the months leads your editors, from all they can learn, to believe that the form in which the journal is now presented is one that is acceptable and pleasing to most of the members.

In addition to establishing a regular form of make-up, it was early decided to secure the coöperation of as many members as possible in the presentation of scientific material. It is our belief that the discussions which are appended to practically every article have not only added much to the interest and value of these various special articles, but that in securing the coöperation of these many additional members, the journal is laying the foundation for better papers for our annual sessions, and is developing better writers on medical subjects.

The special Bedside Medicine and Medicine Today departments have placed the editors under obligation to the numerous colleagues who have taken part in the presentation of material in those departments, which aim to mirror the progress of scientific medicine by colleagues who have particular interest in the various phases of medical practice which are therein discussed.

It is hoped that the editorial presentations of organization problems which confront the California Medical Association have been of aid in creating greater interest in these many important matters with which the practice of medicine is nowadays so intimately identified and upon the proper solution of which the future of medical practice will so largely depend.

It has been gratifying to the editors to know that their belief in the value of the advertising pages of California and Western Medicine was not in error, and that the 33 per cent increase in advertising rates which was recommended to go into effect on the first of the present calendar year brought practically no loss of advertisers, but a very considerable increase of income. California and Western Medicine is today on considerably more of a self-supporting basis than at the time it was placed under the supervision of the present editors.

If it be not deemed immodest it might be pardonable to say that no state medical journal in America, in typographical make-up and in general form, can be said to be superior to the official journal which the California Medical Association is now printing. The efforts to still further improve the publication will be continued, and with proper coöperation of members additional improvement will be made.

Your editors, as in previous years, have divided the manuscripts and department and other labors of the journal between them, and are grateful that their viewpoints on basic policies for California and Western Medicine have always been in accord.

As is known to practically all of you, the papers read at each annual meeting become the official property of the journal, and in due time appear therein. A summary concerning the papers received, printed, and on hand, would be somewhat as follows:

Of the one hundred and twenty-five papers read at the last annual meeting, but twelve are now unpublished.

Published in 1928	37
Published in 1929	36
Read and published elsewhere, declined, or not sent in	40
Remained unpublished	12
Total	125

Articles published in 1928:

Papers from 1927 meeting	40
Papers from 1928 meeting	37
Prize papers	5
Papers read before general sessions	5
Lure of Medical History	11
Papers from Utah and Nevada	6
Papers read before other societies	20
Papers not read	13
Case Reports and Clinical Notes	26
Total	163

We have at present on hand:

Papers from 1928 meeting	12
Read before other societies	7
Original papers not read	8
Read before Utah and Nevada	2
Lure of Medical History	3
Case Reports and Clinical Notes, etc.	8
Total	40

In conclusion, the editors again desire to thank all those members who have courteously coöperated in the efforts to make California and Western Medicine one of the outstanding state medical society publications in the United States.

The report of the editors was referred to the Reference Committee.

* * *

IX. **Report of the General Counsel.**—At the request of the chair, Mr. Peart then submitted the report of the legal department, giving cases disposed of during the year and cases still pending; also claims still pending and the condition of the funds at the present time. Mr. Peart then briefly outlined the formation and activities of the Indemnity Defense Fund and gave an outline of the cases handled throughout the year and the cases still pending. The general counsel then outlined the additional work done by the legal department in connection with contracts entered into by the Association; opinions on legal questions; and work on bills before the state legislature requiring legal advice.

The report of the general counsel was referred to the Reference Committee.

* * *

X. **New and Unfinished Business:**

1. *Constitution and By-Laws.*—George G. Reinle, member of the Committee on the Constitution and By-Laws, stated that on account of the unavoidable

absence of Percy T. Magan, chairman of the committee, he would submit the report. Doctor Reinle stated that the committee had studied the proposed constitutions and by-laws and, with a few minor changes, recommended the adoption of the Constitution and By-Laws as prepared by the former Committee on Revision.

T. Henshaw Kelly then moved that the House of Delegates adopt the following amendment to the Constitution which was presented at the annual meeting of the Association held at Los Angeles April 25 to April 28, 1927, at the second meeting of the House of Delegates held on April 27, 1927, and re-presented at the annual meeting of the Association held at Sacramento, April 30 to May 3, 1928, at the first meeting of the House of Delegates held on April 30, 1928, and which has been published twice in California and Western Medicine, the official journal of the Association, during each year following its presentation and re-presentation. Said amendment being then read by Doctor Kelley as follows:

Amend Article XII of the Constitution relating to amendments by striking out the existing article and substituting in lieu thereof the following:

ARTICLE XII

AMENDMENTS—ENABLING ACT

The House of Delegates at any annual meeting, including the meeting at which this amendment is adopted, may amend any article of this Constitution by a two-thirds vote of the delegates present and acting; provided that any amendment to the Constitution is submitted in writing and laid on the table for twenty-four hours previous to being considered and acted upon.

Doctor Kelly then moved for the adoption of the foregoing amendment; such motion was seconded by George G. Reinle of Oakland, and unanimously carried; the vote in the affirmative being more than two-thirds of the members of the House of Delegates present and acting, and more than two-thirds of all the members thereof.

2. *Report of Final Committee on Revision.*—Doctor Kelly stated that the amendment was passed in order to insure the validity of action proposed to be taken on the Constitution and By-Laws. Doctor Kelly then advised the House that a committee, appointed by the Council, consisting of Dr. George H. Kress, the general counsel of the Association and himself had examined the draft of amended Constitution and By-Laws submitted by Percy T. Magan's committee and had made a few minor changes in substance and some rearrangement of grammatical construction. Doctor Kelly then submitted in writing, introduced and offered the said final draft of Constitution and By-Laws as amended and revised by said Committee on Revision, also draft of amended Constitution and By-Laws as recommended by the committee of which Doctor Magan is chairman, and also draft of the Constitution and By-Laws prepared by the general counsel in cooperation with other members of the Association; and also amendment suggested by a delegate from San Diego County relating to necessary length of residence in a county before an applicant is eligible for membership in a county society; all of said amendments being in writing and submitted, introduced and offered as amendments both to the Constitution and to the By-Laws.

Doctor Kelly then stated that copies of the final draft would be printed for consideration at the House of Delegates on Wednesday.

3. *Authority for Incorporation.*—Doctor Kelly then stated that the Council having deemed it wise to incorporate a holding corporation for the Association, he now wished to submit for the Council the following resolution on incorporation:

Whereas, The objects and purposes of this Association will be aided and furthered by the formation of a corporation, and the conveyance, assignment and transfer to such corporation of certain assets and property of this Association; now, therefore, be it

Resolved, That the Council is hereby authorized, empowered, and directed to cause the formation and organization of a nonprofit corporation under the laws of the State of California, without capital stock, the members whereof shall be active members of this Association, who are councilors or constitutional officers thereof, with such incorporators, name, purposes, objects, principal place of business, term, number of directors, and directors to serve for the first year and until their successors are elected, and shall have accepted office, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and with such further provisions in the articles of incorporation thereof and with such by-laws as the Council shall prescribe, fix, and determine; and be it further

Resolved, That upon the formation of such corporation the Council and the officers of this Association or any of the officers designated by the Council are hereby authorized and empowered to grant, assign, transfer, convey, and deliver, or cause to be granted, assigned, transferred, conveyed, and delivered to the said corporation without any consideration therefor such property, real or personal, of the Association as the Council shall determine; and to execute and deliver in the name of the Association such conveyances, assignments, and transfers and other instruments as shall be approved by the Council to carry out the foregoing.

Doctor Kelly then moved for the adoption of the foregoing resolution and all of the foregoing amendments to the Constitution and By-Laws. The chair then ordered all of said amendments laid on the table for twenty-four hours, and the foregoing resolution and all of the foregoing amendments to the Constitution and By-Laws were referred to the Reference Committee and also to the Committee on Revision.

4. *Resolutions:*

(a) *Resolution No. 1—Senate Bill No. 842—State Medical Library.*—Junius B. Harris of Sacramento then introduced the following resolution relating to Senate Bill No. 842 providing for the establishment of a medical library at Sacramento:

Resolved, That the California Medical Association in its fifty-eighth annual session assembled at Coronado, California, heartily endorses and approves Senate Bill No. 842, which provides for the establishment and maintenance of a state medical library at the State Capitol, and respectfully urges the members of the California legislature to support this bill as passed by the Senate; and be it further

Resolved, That a copy of this resolution be telegraphed to every member of the legislature.

Doctor Harris then moved for the suspension of the rules of the House so that the telegrams could be sent immediately; which motion was seconded by Oliver D. Hamlin of Oakland and unanimously carried.

Henry J. Ullmann of Santa Barbara then moved for the adoption of the resolution, which motion was seconded by T. Henshaw Kelly of San Francisco and carried.

(b) *Resolution No. 2—Dispensaries, Clinics, and Like Institutions.*—John C. Ruddock of Los Angeles spoke of the work of the Clinic Commission of the Los Angeles County Medical Association giving a summary of the work of the commission and then presented the following resolution on clinics, dispensaries, and like institutions as prepared by the Los Angeles Clinic Commission:

Whereas, The care of the indigent sick and injured demands careful supervision in order that the highest and best interests of both the public and of the medical profession shall be maintained; and

Whereas, In the last few years a large number of dispensaries, clinics and institutions and organizations of similar import have come into existence, presumably to care for the indigent sick and injured according to standards laid down by the best practice, but

some of which institutions, such as dispensaries, clinics, and so on, are really a cover for mercenary or commercialistic exploitation of the lay public who may need the care of men and women engaged in the practice of scientific medicine; and

Whereas, All such perversions of legitimate philanthropic and professional care to the indigent sick and injured of the state promotes a lack of confidence among the lay public and unjustly casts reflection upon scientific and organized medicine; now, therefore, be it

Resolved, By the Los Angeles delegation of the House of Delegates of the California Medical Association that the House of Delegates of the California Medical Association be petitioned to give instructions to the Council of the California Medical Association to undertake, within the coming year, a survey of institutions such as dispensaries, clinics, etc., in different parts of California, to the end of learning to what extent institutions of this type exist, which from the standpoint of justice to the lay public and to the medical profession should not exist, and to determine where and to what extent such institutions, directly or indirectly, trench into the domain of state medicine, and so on; and be it further

Resolved, That the House of Delegates instruct the Council to expend the necessary funds in order to carry out such investigations in proper form. The Council to have the right from time to time to make any special investigations in relation to these matters and to give from time to time, through the official journal, publicity to such phases of these problems as may be deemed desirable, and at the next annual meeting to bring in a detailed report concerning its investigations thereon; be it further

Resolved, That this House of Delegates does herewith give such instructions as outlined above to the Council of the California Medical Association.

Resolution No. 2, clinics, dispensaries and like institutions, was referred to the Reference Committee.

(c) *Resolution No. 3—Medical Licensure:*

George H. Kress of Los Angeles then stated that one of the subjects considered by the Association has been the matter of medical licensure; that the Special Committee had made its final report to the Council; and that upon instructions from the Council he wished to introduce the following resolution:

Resolved, By the California Medical Association that the Council be instructed to appoint a committee to make a prompt and thorough study of the present Medical Practice Act of California, and of basic science acts, in order that the Council may better determine what action if any should be taken by legislative or initiative measures to better scientific medicine and the public health.

Resolution No. 3, Medical Licensure, was referred to the Reference Committee.

* * *

XI. **William S. Thayer.**—The president announced that before adjournment he would like Dr. William S. Thayer, president of the American Medical Association to address the House. The president appointed President-elect Gibbons to escort Doctor Thayer to the platform. Doctor Thayer then addressed the House, commending the American Medical Association on its activities and coöperation with state associations.

* * *

XII. **Reading and Adoption of Minutes.**—The minutes of the meeting were then read and, there being no objection, were approved.

* * *

XIII. **Adjournment.**—There being no further business the meeting adjourned to meet at 8 p. m., Wednesday, May 8, 1929.

MINUTES OF THE HOUSE OF DELEGATES

Second Meeting

Held in the breakfast room, Hotel del Coronado, Coronado, California, Wednesday, May 8, 1929.

I. **Call to Order.**—The meeting was called to order by the president, William H. Kiger of Los Angeles.

* * *

II. **Roll Call.**—The secretary called the roll; ninety-one (91) members of the House of Delegates comprising officers, councilors, and delegates were seated out of a total membership of one hundred and twenty-three (123), and the president declared a quorum present.

* * *

III. **Announcement of the Place of Meeting for 1930.**—The chair announced that the Council had selected Hotel Del Monte, Del Monte, as the place of the 1930 annual session and the date of the meeting had been set as April 28 to May 1, 1930.

* * *

IV. **Report of the Reference Committee.**—The president then called upon the chairman of the Reference Committee, Junius B. Harris, for the report of said committee. Doctor Harris presented the following report:

1. *Report of the Council.*—Certain items in the report of the Council warrant special attention.

(*a*) Clinical and Research Prizes.—The Reference Committee feels that the two $150 prizes for the best papers on clinical and research subjects should be given publicity by section officers, county societies and through the journal, and I move for the adoption of the recommendation of the Council for the continuance of the awards.

Motion of Junius B. Harris was seconded by T. Henshaw Kelly and unanimously carried.

(*b*) Annual Dues.—In view of the benefits offered to all members of the Association, the Reference Committee suggests the adoption of the recommendation of the Council that the annual dues be set as $10, and I so move.

Motion of Junius B. Harris was seconded by Morton R. Gibbons and unanimously carried.

(*c*) Membership.—The report on membership is very satisfactory and the Reference Committee feels that the recommendation of the Council contained in its report that campaigns for membership be so guarded that new members will be a credit to the Association should receive the unanimous approval of all members of the Association.

The Council's report of the redistricting of the Association, the forming of the Woman's Auxiliary, and handling legislation appears commendable to your committee. The Association is indebted to those who have worked on these committees.

The report of the Council shows that the Association is working harmoniously along constructive lines, and I move for the approval of the Council's report as a whole.

Motion of Junius B. Harris was seconded by Langley Porter and carried.

2. *Report of the Secretary.*—The gain in membership as given by the secretary's report is very gratifying. It is also interesting to know that many state societies have much larger dues than our Association. When one considers the value of the journal, the Extension Lectures, Placement Bureau, addressograph service and other benefits open to all members, our present dues seem more than justified. As stated by the secretary, trained workers both in the offices of the Association and in various county society offices are invaluable to the strength of the entire Association. In recommending the report for adoption, the Reference Committee wishes to commend Doctor

Pope on the manner in which the business of the Association is carried on in the offices of the Association.

Junius B. Harris then moved for the adoption of the recommendation of the Reference Committee approving the report of the secretary; which motion was seconded by Morton R. Gibbons and carried.

3. *Report of the Editors.*—The report of the editors shows a very satisfactory condition of the state journal. The report on papers published during the last year is most pleasing. The typographical make-up of the journal and the care exercised by the editors in selecting and editing of papers has made CALIFORNIA AND WESTERN MEDICINE one of the outstanding medical journals.

The Association is appreciative of the splendid work of the editors, and I move for the adoption of the recommendation of the Reference Committee approving the report of the editors.

Motion of Junius B. Harris was seconded by Henry J. Ullmann, and carried.

4. *Report of the Committee on Scientific Program.*—The report of the Committee on Scientific Program outlines the fine work done by section officers and the Arrangements Committee. The efforts of the committee in maintaining the high standard of articles to be published in the journal by careful selection of programs is worthy of mention.

The Reference Committee commends the report and I move for the adoption of the recommendation of the Reference Committee approving the report of the Committee on Scientific Program.

Motion of Junius B. Harris was seconded by Robert A. Peers, and carried.

5. *Report of the Auditing Committee.*—As stated in the report of the Auditing Committee the funds of the Association are in a very satisfactory condition. I move for the adoption of the recommendation of the Reference Committee approving the report of the Auditing Committee.

Motion of Junius B. Harris was seconded by Henry J. Ullmann, and carried.

6. *Report of the Legal Department.*—The report of the legal department gives a very good outline of the cases and claims pending in the Medical Society and Legal and Indemnity Defense Funds. The special opinions rendered on legal questions during the year by the general counsel have been invaluable to the Association. The entire activities of the legal department show that the general counsel and his associates are ever alert to the best interests of the medical profession.

I move for the adoption of the recommendation of the Reference Committee approving the report of the legal department.

Motion of Junius B. Harris was seconded by George Reinle, and carried.

7. *Resolution No. 1—Clinics.*—The proposed survey on clinics and like institutions as submitted by the Los Angeles Clinic Commission presents a question of great importance to the medical profession and the public.

The Reference Committee therefore recommends that this resolution be referred to the Council and that the House of Delegates instructs the Council to study these problems, through a committee or committees to be appointed by the Council, and that the House of Delegates authorizes and empowers the Council to take such action through such committee or committees or otherwise in the name of the Association, and for and on behalf of the Association and its members, as in the judgment of the Council will work to the proper solution of these important matters, which so vitally concern the public health and welfare.

I move for the adoption of the recommendation of the Reference Committee. Ferdinand Stabel seconded the motion, which carried unanimously.

8. *Resolution No. 2—Medical Practice and Basic Science Act.*—The Reference Committee recommends that this resolution be referred to the Council with power to appoint a committee to study the whole matter, and I so move.

Motion of Junius B. Harris was seconded by Alexander Keenan, and carried.

9. *Resolution No. 3—Honorary Membership of Lucy Wanzer.*—The Reference Committee presented the following resolution, and Doctor Harris moved for its adoption:

Whereas, Doctor Lucy Wanzer is the oldest woman member of the medical profession of California and has for fifty years been an honored and beloved member of the medical profession of California; therefore be it

Resolved, That Doctor Lucy Wanzer be and hereby becomes an honorary member of the California Medical Association.

Motion of Junius B. Harris was seconded by Alexander Keenan, and unanimously carried.

10. *Resolution No. 4—Death of Thomas W. Huntington.* The Reference Committee presented the following resolution, and Doctor Harris moved for its adoption:

Whereas, Dr. Thomas W. Huntington was one of the earliest distinguished, honored and beloved members of the California Medical Association, and

Whereas, Dr. Thomas W. Huntington, after a long life devoted to his chosen profession has been called by death; therefore be it

Resolved, That this House of Delegates of the California Medical Association assembled at Coronado, May 8, 1929, express its deep appreciation of the value of the services of Doctor Huntington to humanity; and be it further

Resolved, That the House of Delegates express its profound regrets for the loss to the State of California; and be it further

Resolved, That the sympathy of the California Medical Association be extended to the family of Doctor Huntington.

Motion of Junius B. Harris was seconded by E. J. Best, and unanimously approved by a rising vote.

11. *Constitution and By-Laws.*—The Reference Committee has examined and studied word by word, the final draft of the proposed Constitution and By-Laws which were formulated by the Committee on the Constitution and By-Laws consisting of Doctors Magan, Reinle, and Keenan, and revised and arranged by the Committee on Revision appointed by the Council and consisting of Doctors Kelly and Kress and the general counsel, Mr. Peart.

The Reference Committee finds it excellent in form and content, without any material changes from the report of the original Committee on Constitution and By-Laws.

The Reference Committee recommends the adoption of the Constitution and By-Laws without alteration, and I move the adoption of its recommendation.

Motion of Junius B. Harris was seconded by Alexander Keenan, and unanimously carried; the vote in the affirmative being more than two-thirds of the delegates present and acting.

* * *

V. **Constitution and By-Laws.**—The president then announced that T. Henshaw Kelly would report on the Constitution and By-Laws.

Doctor Kelly then stated that the final draft required a few corrections in arrangement and wording

intended to clarify meaning and to avoid confusion; that aside from this the Constitution and By-Laws was in the same form as the final draft submitted in writing at the first meeting of the House of Delegates. As shown by the records of the secretary's office, the said amendments to the Constitution and By-Laws as contained in said final draft thereof had been sent officially by the secretary of the Association to each component county society at least two months before this meeting, viz., February 15, 1929, and each thereof had been submitted in writing at the meeting of the House of Delegates held May 6, 1929, and laid on the table for twenty-four hours thereafter.

Doctor Kelly then moved that the House proceed with the consideration of the Constitution, which motion was seconded by Harlan Shoemaker, and carried unanimously.

Joseph King then moved that the House adopt the Constitution article by article, and if there was no objection the president shall declare each section as having been passed. Percy T. Phillips seconded the motion, which was unanimously carried: the vote in the affirmative being more than two-thirds of the delegates present and acting.

T. Henshaw Kelly then read the final draft of the amended Constitution article by article by title and the president called for objections article by article and the House unanimously, by affirmative vote of more than two-thirds of all its members, adopted each article as read by title. No objection was entered by the House or any member thereof to any article of the Constitution.

Joseph King then moved for the adoption of the Constitution as a whole; which motion was seconded by Harlan Shoemaker, and unanimously carried; more than two-thirds of all members of the House of Delegates being present, acting and voting in the affirmative.

Joseph King then moved that the By-Laws be considered as read and adopted as a whole; such motion was seconded by William T. McArthur, and unanimously carried; more than two-thirds of all members of the House of Delegates being present, acting and voting in the affirmative.

T. Henshaw Kelly then introduced the following resolution on engrossing the Constitution and By-Laws:

Resolved, That the Executive Committee engross the Constitution and By-Laws, making the necessary typographical corrections and arrangements, index the same for greater reference convenience, and print the same in the official journal with reprints in pamphlet form.

Doctor Kelly then moved for the adoption of the resolution; such motion being seconded by George Reinle, and unanimously carried.

Doctor Kelly then moved that the House of Delegates extend a vote of thanks to the committee, consisting of Doctors Magan, Reinle, and Keenan, that established the final principles upon which the Constitution and By-Laws are based. The motion was seconded by W. J. Miller and carried.

* * *

VI. **Incorporation.**—William Duffield of Los Angeles then introduced the following resolution on incorporation:

Whereas, the objects and purposes of this Association will be aided and furthered by the formation of a corporation, and the conveyance, assignment and transfer to such corporation of certain assets and property of this Association; now therefore, be it

Resolved, That the Council is hereby authorized, empowered, and directed to cause the formation and organization of a nonprofit corporation under the laws of the State of California, without capital stock, the members whereof shall be active members of this Association, who are councilors or constitutional officers thereof, with such incorporators, name, purposes, objects, principal place of business, term, number of directors, and directors to serve for the first year and until their successors are elected, and shall have accepted office, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and with such further provisions in the articles of incorporation thereof and with such by-laws as the Council shall prescribe, fix, and determine; and be it further

Resolved, That upon the formation of such corporation the Council and the officers of this Association or any of the officers designated by the Council are hereby authorized and empowered to grant, assign, transfer, convey, and deliver, or cause to be granted, assigned, transferred, conveyed, and delivered to the said corporation without any consideration therefor such property, real or personal, of the Association as the Council shall determine; and to execute and deliver in the name of the Association such conveyances, assignments, and transfers and other instruments as shall be approved by the Council to carry out the foregoing.

Doctor Duffield then moved for the adoption of the foregoing resolution on incorporation; such motion was seconded by Alexander Keenan, and unanimously carried; more than two-thirds of all members of the House of Delegates being present, acting and voting in the affirmative.

* * *

VII. **Referendum.**—Doctor Duffield stated it would be necessary to pass a resolution on referendum and stated that the general counsel would explain the procedure to the House of Delegates. Mr. Peart then explained that the purpose of the referendum was to secure the consent of a majority of the members of the Association at large voting upon the matter.

Doctor Duffield then presented the following resolution:

Whereas, The House of Delegates of the California Medical Association at the regular annual session thereof duly noted, called and held at Coronado, San Diego County, California, May 6 to 9, 1929, did at a regular meeting of said session held on the eighth day of May 1929 (a quorum being present and acting) duly pass and adopt by the affirmative vote of two-thirds of the members thereof present and acting, a resolution in words and figures as follows, viz.:

Whereas, The objects and purposes of this Association will be aided and furthered by the formation of a corporation, and the conveyance, assignment and transfer to such corporation of certain assets and property of this Association; now, therefore, be it

Resolved, That the Council is hereby authorized, empowered, and directed to cause the formation and organization of a nonprofit corporation under the laws of the State of California, without capital stock, the members whereof shall be active members of this Association, who are councilors or constitutional officers thereof, with such incorporators, name, purposes, objects, principal place of business, term, number of directors, and directors to serve for the first year and until their successors are elected, and shall have accepted office, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and with such further provisions in the Articles of Incorporation thereof and with such by-laws as the Council shall prescribe, fix, and determine; and be it further

Resolved, That upon the formation of such corporation the Council and the officers of this Association or any of the officers designated by the Council are hereby authorized and empowered to grant, assign, transfer, convey and deliver, or to cause to be granted, assigned, transferred, conveyed, and delivered to the said corporation without any consideration therefor such property, real or personal, of the Association as the Council shall determine; and to execute and deliver in the name of the Association such conveyances,

assignments, and transfers and other instruments as shall be approved by the Council to carry out the foregoing; now therefore be it

Resolved, That the said resolution and the action of the House of Delegates in passing and adopting the same be submitted to the decision and referendum votes of all of the active members of the Association by mail; and be it further

Resolved, That the Council be and is hereby authorized, empowered, and directed to fix and determine the form in which said resolution and the action of the House of Delegates in passing and adopting the same shall be so referred and submitted by mail to the active members of this Association, the form of the ballot thereon, and the time within which such referendum vote shall be cast by said active members.

Doctor Duffield then moved for the adoption of the foregoing resolution on referendum; such motion was seconded by Harlan Shoemaker, and unanimously carried; more than two-thirds of all the members of the House of Delegates being present, acting and voting in the affirmative.

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VIII. **Election of Officers.**—The chair announced that the next order of business would be the election of officers and that, under the new Constitution, it would be necessary to elect a president-elect and a speaker and vice-speaker of the House of Delegates.

1. *President-Elect.*—The chair then stated that nominations for president-elect were now in order.

Mott Arnold of San Diego nominated Lyell C. Kinney of San Diego as president-elect; such nomination was seconded by T. Henshaw Kelly of San Francisco.

A. L. Bramkamp of Riverside nominated William W. Roblee of Riverside for president-elect; such nomination was seconded by A. S. Parker of Merced.

Henry J. Ullmann of Santa Barbara moved that the nominations be closed; such motion was seconded by George Reinle of Oakland.

The chair announced that he would appoint as tellers LeRoy Brooks of San Francisco, John Ruddock of Los Angeles, and Edward Ziegelman of San Mateo.

A vote by ballot was then taken. While the ballot was being cast, on motion of Joseph King, seconded by Walter B. Coffey, the vote was made unanimous for Lyell C. Kinney. The secretary cast the ballot, and the president declared Lyell C. Kinney of San Diego unanimously elected president-elect.

2. *Speaker of the House of Delegates.*—William T. McArthur of Los Angeles, nominated Edward M. Pallette of Los Angeles for speaker of the House of Delegates; such nomination was seconded by Harlan Shoemaker of Los Angeles.

Percy T. Phillips of Santa Cruz moved that the nominations be closed and that the secretary be instructed to cast the ballot for Edward M. Pallette; such motion was seconded by T. Henshaw Kelly of San Francisco, and unanimously carried.

The secretary cast the ballot and the chair announced Edward M. Pallette of Los Angeles elected speaker of the House of Delegates for a term of one year.

3. *Vice-Speaker of the House of Delegates.*—William Duffield of Los Angeles nominated John H. Graves of San Francisco for vice-speaker of the House of Delegates; such nomination was seconded by Victor Vecki of San Francisco.

Ferdinand Stabel of Redding moved that the nominations be closed and that the secretary be instructed to cast the ballot for John H. Graves; such motion was seconded by Clarence Toland of Los Angeles, and unanimously carried.

The secretary cast the ballot and the chair announced John H. Graves of San Francisco elected vice-speaker of the House of Delegates for a term of one year.

* * *

IX. **Election of Councilors.**—The chair announced that the next order of business would be the election of councilors under the new Constitution and By-Laws and called the attention of the House to Article IX, Section 9 of the new Constitution, reading:

"Upon the adoption of this Constitution, the House of Delegates shall proceed to elect councilors as follows: At the annual meeting, at which this Constitution is adopted, the councilors of the First, Fourth, and Seventh Districts and two councilors-at-large shall be elected; in the succeeding year the councilors of the Second, Fifth, and Eighth Districts and two councilors-at-large shall be elected; and in the year succeeding, the councilors of the Third, Sixth, and Ninth Districts and two councilors-at-large shall be elected; and so on in sequence in the years to follow.

"Where there is a conflict with the above provisions, as regards the time of expiration of office of any councilors holding office at the time this Constitution is adopted, then the terms of such councilors holding office and the terms of the councilors elected upon the adoption hereof shall cease at such times so that the above provisions may become operative; and any lapses of continuity of office arising through the above provisions shall be filled by the House of Delegates or the Council, as in the case of other vacancies.

"When a component county society shall have more than fifteen hundred members, two of the councilors-at-large shall be elected from its membership; the district councilor from each such county, and the two said councilors-at-large shall each be elected in different years in calendar sequence."

The chair then announced that the following chart had been prepared by the general counsel in order to clarify the matter of election of councilors, and that Mr. Peart would explain it to the House of Delegates:

Number of District	Expiration Present Terms	Expiration New Terms	Incumbent	Remarks	Term of Successors
1	1930	1932	Kinney	Resignat'n	3 years
2	1931	1930	Duffield	Resignat'n effective '30	No election
3	.....	1931	.....		2 years
4	1931	1932	De Lappe		3 years
5	1929	1930	(Bingaman (Shephard		1 year
6	1929	1931	Coffey		2 years
7	1929	1932	Hamlin		3 years
8	1931	1930	Harris	Resignat'n 1930	No election
9	1929	1931	Rogers		2 years
At Large:					
Shoemaker	1929	1932	Shoemaker		3 years
Kress	1929	1931	Kress		2 years
Catton	1929	1932	Catton		3 years
Curtiss	1929	1930	Curtiss		1 year
Peers	1931	1931	Peers		No election
Kelly	1931	1930	Kelly	Resignat'n effective '30	No election

Mr. Peart then explained the chart to the House of Delegates and stated that the resignation of Doctor Duffield, councilor of the Second District, effective in 1930; the resignation of Doctor Harris, councilor for the Eighth District, effective in 1930; the resignation of Doctor Kelly, councilor-at-large, effective in 1930; and the resignation of Doctor Kinney, effective prior

to his election as president-elect had been filed with the secretary.

The president then stated a ten-minute recess would be declared for purposes of caucuses for nominees for district councilors.

On motion of George H. Kress, seconded by Morton R. Gibbons, and carried, a ten-minute recess was declared.

* * *

X. **Call to Order.**—After a ten-minute recess the president called again the meeting to order and stated that the secretary would read the names of nominees from the districts in which elections were necessary according to the chart submitted.

XI. **Election of Councilors:**

1. *First District.*—The secretary announced that Mott Arnold of San Diego had been nominated as councilor for the First District by written nomination filed with the secretary signed by delegates William H. Potter of San Diego and A. L. Bramkamp of Riverside. William T. McArthur of Los Angeles seconded the nomination and moved that the nominations be closed and that the secretary be instructed to cast the ballot for Mott Arnold; such motion was seconded by George Reinle of Oakland, and unanimously carried.

The secretary cast the ballot and the chair announced the election of Mott Arnold as councilor for the First District for a term of three years.

2. *Third District.*—The secretary announced that Gayle G. Moseley of Redlands had been nominated as councilor for the Third District by written nomination filed with the secretary signed by delegates G. L. Sobey of Paso Robles and F. F. Abbott of Ontario. Charles L. Curtiss of Redlands seconded the nomination of Doctor Moseley.

George C. Sabichi of Bakersfield was nominated councilor for the Third District by Robert M. Jones of Ventura; such nomination being seconded by T. C. Myers of Los Angeles.

George Reinle of Oakland moved that the nominations be closed; which motion was seconded by Smith McMullin of Yuba City.

The chair then announced that a vote by ballot would be taken and that he would appoint Joseph K. Swindt of Pomona as teller in place of John Ruddock, who had been called from the meeting.

A ballot vote was then taken. While the ballot was being cast, on motion of Robert M. Jones, seconded by Morton R. Gibbons, the vote was made unanimous for Gayle G. Moseley of Redlands.

The secretary cast the ballot and the chair announced the election of Gayle G. Moseley as councilor for the Third District for a term of two years.

3. *Fourth District.*—The secretary announced that Fred R. DeLappe of Modesto had been nominated as councilor for the Fourth District by written nomination filed with the secretary signed by delegates A. S. Parker of Merced, Jesse W. Barnes of Stockton, Walter Tourtillott of Porterville, and Barton J. Powell of Stockton. Robert A. Peers of Colfax seconded the nomination and moved that the nominations be closed and that the secretary be instructed to cast the ballot for Fred R. DeLappe; such motion was seconded by Percy T. Phillips of Santa Cruz, and unanimously carried.

The secretary cast the ballot and the chair announced the election of Fred R. DeLappe as councilor for the Fourth District for a term of three years.

4. *Fifth District.*—The secretary announced that Alfred L. Phillips of Santa Cruz had been nominated as councilor for the Fifth District by written nomination filed with the secretary signed by delegates E. W. Hill of San Benito, Edwin Ziegelman of San Mateo, E. M. Miller of Santa Clara, Percy T. Phillips of Santa Cruz, William Gratiot of Monterey, and H. M. Hoyt of Pacific Grove. Smith McMullin of Yuba City seconded the nomination and moved that the nominations be closed and that the secretary be instructed to cast the ballot for Alfred L. Phillips; such motion was duly seconded.

The secretary cast the ballot and the chair announced the election of Alfred L. Phillips as councilor for the Fifth District for a term of one year.

5. *Sixth District.*—The secretary announced that Walter B. Coffey of San Francisco had been nominated as councilor for the Sixth District by a written nomination filed with the secretary, signed by delegates W. R. P. Clark, Victor Vecki, and H. A. L. Ryfkogel, all of San Francisco. T. Henshaw Kelly seconded the nomination and moved that the nominations be closed and the secretary instructed to cast the ballot for Walter B. Coffey; such motion was seconded by Clarence Toland of Los Angeles.

The secretary cast the ballot and the chair announced the election of Walter B. Coffey as councilor for the Sixth District for a term of two years.

6. *Seventh District.*—The secretary announced that Oliver D. Hamlin of Oakland had been nominated as councilor for the Seventh District by written nomination filed with the secretary, signed by delegates Edward N. Ewer of Oakland and J. M. McCullough of Crockett. George Reinle of Oakland seconded the nomination and moved that the nominations be closed and that the secretary be instructed to cast the ballot for Oliver D. Hamlin; such motion was seconded by Harlan Shoemaker.

The secretary cast the ballot and the chair announced the election of Oliver D. Hamlin as councilor for the Seventh District for a term of three years.

7. *Ninth District.*—The secretary announced that Henry S. Rogers of Petaluma had been nominated as councilor for the Ninth District by written nomination filed with the secretary signed by delegates Charles C. Falk of Humboldt and J. W. Seawell of Sonoma. Robert Peers of Colfax seconded the nomination and moved that the nominations be closed and that the secretary be instructed to cast the ballot for Henry S. Rogers; such motion was seconded by Junius B. Harris.

The secretary cast the ballot and the chair announced the election of Henry S. Rogers as councilor for the Ninth District for a term of two years.

8. *Councilors-at-Large.*—(a) Fitch C. E. Mattison of Los Angeles nominated Harlan Shoemaker as councilor-at-large to succeed himself; such nomination was seconded by William T. McArthur.

T. C. Myers of Los Angeles nominated George Hunter of Los Angeles as councilor-at-large; such nomination was seconded by Fred B. Clark. Smith McMullin moved that the nominations be closed; such motion was duly seconded.

A ballot vote was then taken. Forty-one votes were cast for George Hunter and forty votes were cast for Harlan Shoemaker.

Charles Falk of Humboldt moved that the vote be recounted; such motion was seconded by Henry S. Rogers. A vote was then taken on the motion and the motion was defeated.

The chair announced the election of George G. Hunter of Los Angeles as councilor-at-large for a term of three years.

(*b*) I. R. Bancroft of Los Angeles nominated George H. Kress of Los Angeles as councilor-at-large to succeed himself; such nomination was seconded by Ferdinand Stabel of Redding. Clarence Toland moved that the nominations be closed and that the secretary be instructed to cast the ballot for George H. Kress; which motion was duly seconded.

The secretary cast the ballot and the chair announced the election of George H. Kress as councilor-at-large to succeed himself for a term of two years.

(*c*) Junius B. Harris of Sacramento nominated Joseph Catton of San Francisco as councilor-at-large

to succeed himself; such nomination was seconded by Walter W. Tourtillott. LeRoy Brooks moved that the nominations be closed and that the secretary be instructed to cast the ballot for Joseph Catton; such motion was seconded by T. Henshaw Kelly.

The secretary cast the ballot and the chair announced the election of Joseph Catton as councilor-at-large to succeed himself for a term of three years.

(*d*) H. E. Zaiser of Orange nominated R. A. Cushman of Santa Ana as councilor-at-large to succeed Charles Curtiss; such nomination was seconded by T. Henshaw Kelly. Percy T. Phillips moved that the nominations be closed and that the secretary be instructed to cast the ballot for R. A. Cushman; which motion was seconded by Joseph King.

The secretary cast the ballot and the chair announced the election of R. A. Cushman as councilor-at-large for a term of one year.

9. *Incumbent Councilors and Officers.*—Joseph King stated that in order that no question arise in the future regarding the terms of the incumbent councilors, as indicated by the chart, and the term of the president-elect he would introduce a blanket nomination covering officers and councilors holding office under the former Constitution and By-Laws. Doctor King then nominated Robert Peers as councilor-at-large for the term of two years; T. Henshaw Kelly as councilor-at-large for the term of one year; William Duffield as councilor of the Second District for the term of one year; Junius B. Harris as councilor of the Eighth District for the term of one year; and Morton R. Gibbons as president-elect until the time of his assumption of office of the president for the term of one year. Said nominations were seconded by George Reinle of Oakland and on motion of Joseph King, seconded by George Reinle and unanimously carried, the secretary was instructed to cast the ballot for each of said officers for each of their respective offices for the terms indicated. The secretary thereupon cast the ballots and the president announced the election of Robert Peers as councilor-at-large for the term of two years; T. Henshaw Kelly as councilor-at-large for the term of one year; William Duffield as councilor of the Second District for the term of one year; Junius B. Harris as councilor of the Eighth District for the term of one year; and Morton R. Gibbons as president-elect until the time of his assumption of the office of president, in which office he shall serve for the term of one year.

* * *

XII. **Delegates and Alternates to the American Medical Association.**—The chair announced that the next order of business would be the election of delegates and alternates to the American Medical Association to fill the places of delegates and alternates whose terms expire at the close of the 1929 session of the American Medical Association in July. The chair then announced that nominations were in order for the election of delegates to the 1930 and 1931 session of the American Medical Association.

(*a*) Walter B. Coffey of San Francisco nominated Dudley Smith of Oakland as delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive; such nomination was seconded by Edward N. Ewer, who moved that the nominations be closed and that the secretary cast the ballot for Dudley Smith. Morton R. Gibbons seconded the motion.

The secretary cast the ballot and the chair announced the election of Dudley Smith of Oakland as delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive.

(*b*) Junius B. Harris of Sacramento nominated Joseph Catton of San Francisco as alternate to the American Medical Association for Dudley Smith for the sessions of 1930 and 1931 inclusive; such nomination was seconded by Clarence Toland. Percy T. Phillips moved that the nominations be closed and that the secretary cast the ballot for Joseph Catton; such motion was seconded by Morton R. Gibbons.

The secretary cast the ballot and the chair announced the election of Joseph Catton of San Francisco as alternate to the American Medical Association for Dudley Smith for the sessions of 1930 and 1931 inclusive.

(*c*) William E. Chamberlain of San Francisco nominated Albert Soiland of Los Angeles as delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive; such nomination was seconded by Victor Vecki of San Francisco, who moved that the nominations be closed and that the secretary cast the ballot; such motion was seconded by Clarence Toland.

The secretary cast the ballot and the chair announced the election of Albert Soiland of Los Angeles as delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive.

(*d*) George H. Kress nominated William Gilbert of Los Angeles as alternate to the American Medical Association for Albert Soiland for the sessions of 1930 and 1931 inclusive; such motion was seconded by George Reinle, who moved that the nominations be closed and that the secretary cast the ballot; which motion was duly seconded.

The secretary cast the ballot and the chair announced the election of William Gilbert of Los Angeles as alternate to the American Medical Association for Albert Soiland for the sessions of 1930 and 1931 inclusive.

(*e*) A. L. Bramkamp of Riverside nominated Martha Welpton of San Diego as delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive; such nomination was seconded by Victor Vecki of San Francisco.

Joseph Pottenger of Monrovia nominated Fitch C. E. Mattison as delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive; such nomination was seconded by William Duffield, who then moved that the nominations be closed; which motion was seconded by Walter B. Coffey.

A vote was then taken. Seventy-three votes were cast, Fitch C. E. Mattison receiving forty-seven votes and Martha Welpton 26.

Doctor Mattison having received the majority of the votes cast was declared elected delegate to the American Medical Association for the sessions of 1930 and 1931 inclusive.

(*f*) William T. McArthur nominated James F. Percy of Los Angeles as alternate to the American Medical Association for Fitch Mattison for the sessions of 1930 and 1931 inclusive; such nomination was seconded by Clarence Toland, who then moved that the nominations be closed and that the secretary cast the ballot, which motion was duly seconded.

The secretary cast the ballot and the chair announced the election of James F. Percy as alternate to the American Medical Association for Fitch Mattison for the sessions of 1930 and 1931 inclusive.

(*g*) The chair then announced that under the reapportionment of the American Medical Association, California was entitled to another delegate for the 1929 session, and nominations were now in order.

William Duffield of Los Angeles nominated Junius B. Harris of Sacramento as delegate to the American Medical Association for the sessions of 1929 and 1930 inclusive; such nomination was seconded by T. Henshaw Kelly, who then moved that the nominations be closed and that the secretary cast the ballot, which motion was duly seconded.

The secretary cast the ballot and the chair announced the election of Junius B. Harris of Sacramento as delegate to the American Medical Association for the sessions of 1929 and 1930 inclusive.

(*h*) E. M. Miller of Santa Clara nominated John Hunt Shephard of San Jose as alternate to the American Medical Association for Junius B. Harris for the sessions of 1929 and 1930 inclusive; such nomination was seconded by E. F. Ziegelman of San Mateo, who then moved that the nominations be closed and that

the secretary cast the ballot, which motion was seconded by Morton R. Gibbons.

The secretary cast the ballot and the chair announced the election of John Hunt Shephard as alternate to the American Medical Association for Junius B. Harris for the sessions of 1929 and 1930 inclusive.

* * *

XIII. **Standing Committee Under New Constitution.**—Doctor Duffield announced that under the new Constitution certain committees should receive the approval of the House of Delegates, but that as there was insufficient time to name the committees he wished to present the following resolution:

Resolved, That the House of Delegates empower the Council to fill the list of standing committees provided for in the new Constitution and By-Laws.

Doctor Duffield then moved for the adoption of the resolution, which motion was seconded by T. Henshaw Kelly, and carried unanimously.

* * *

XIV. **Resolutions of Sympathy.**—Percy T. Phillips moved that the president appoint a committee to prepare suitable resolutions of esteem and respect for Dr. John C. Yates, former member of the Association; which motion was seconded by T. Henshaw Kelly, and carried unanimously.

The president appointed as members of the committee, Percy T. Phillips of Santa Cruz (chairman), William Duffield of Los Angeles, and R. A. Cushman of Orange.

On motion of George Sabichi of Bakersfield, seconded by Junius B. Harris of Sacramento, the name of Francis A. Hamlin of Bakersfield was added to the resolution of sympathy.

On motion of William T. McArthur seconded by George H. Kress, the name of Henry G. Brainerd was added to the resolution of sympathy.

* * *

XV. **Resolution of Appreciation.**—Clarence Toland of Los Angeles presented the following resolution of appreciation.

Resolved, That the California Medical Association expresses its appreciation of the generous hospitality of the San Diego County Medical Society; and be it further

Resolved, That the members of the California Medical Association extend sincere thanks to the Arrangements Committee, Entertainment Committee, and the hotel management and staff for their generous hospitality and entertainment, which has made this fifty-eighth annual session of the California Medical Association one of the memorable events in its history; and to the press of the city of San Diego for its coöperation in the interest of scientific medicine; and be it further

Resolved, That the thanks of the California Medical Association be extended to our invited guests, William S. Thayer, president of the American Medical Association; John F. Binnie, Admiral E. R. Stitt, William J. Mayo, Reverend Howard B. Bard, John H. Musser, Frederick H. Falls, Robert C. Coffey, and Byrl R. Kirklin for their presence and their addresses, which have contributed in large measure to the success of this fifty-eighth session.

T. Henshaw Kelly then moved for the adoption of the resolution; which motion was seconded by Morton R. Gibbons and unanimously carried.

* * *

XVI. **Presentation of the President.**—The chair appointed T. Henshaw Kelly and LeRoy Brooks to escort the incoming president to the platform. Morton R. Gibbons was then presented to the House and acknowledged the great honor conferred upon him by the Association and commended the outgoing administration.

* * *

XVII. **Presentation of the President-Elect.**—The chair appointed Mott Arnold and Joseph King to escort the incoming president-elect to the platform. Lyell C. Kinney was then presented to the House. Doctor Kinney expressed thanks for the recognition of the San Diego County Society and acknowledged the honor shown him by the Association.

* * *

XVIII. **Reading and Adoption of Minutes.**—The minutes of the session were then read and, there being no objection, were approved.

XIX. **Adjournment.**—There being no further business the meeting adjourned.

COMPONENT COUNTY SOCIETIES

KERN COUNTY

Dr. Emmet Rixford, San Francisco surgeon, and also a professor of surgery at the Stanford University Medical School, addressed the society on the subject of "Coccidioides Granuloma." Doctor Rixford was the discoverer of this disease. He found it first in a case in the San Francisco Hospital in 1893. After considerable research work he was able to isolate the germ which causes the disease, although up to this time no cure has been found for it. Coccidioides is a disease which seems to be indigenous to the San Joaquin Valley, although a few isolated cases have been found in other parts of the United States. However, 99 per cent of the cases are found in California, and most of these in the San Joaquin Valley. Dr. Jos. Smith, superintendent of the Kern General Hospital, demonstrated a case of this disease and discussed some of the work done in the Kern General Hospital in the treatment of coccidioides where over fifty cases have been observed in the past ten years.

Dr. Fred H. DeLappe of Modesto, the councilor of the state medical society for this district, made a short talk before the society discussing some of the legislation affecting physicians now before the legislature at Sacramento.

Dr. Louis A. Packard of Bakersfield and Dr. A. L. Johnson of Taft were elected to membership in the Kern County Medical Socicty.

Upon arriving at Bakersfield Doctor Rixford made a trip to Stony Brook Retreat and visited the Kern County Preventorium, which he pronounced one of the finest buildings of its kind he had even seen. He made an automobile tour of Bakersfield and its environs, and was much impressed with the remarkable growth of Bakersfield since his last visit a number of years ago.

Almost all the members and a number who are not members of the society attended in order to hear Doctor Rixford's address, which was very much enjoyed by all. The largest number ever recorded at a meeting of the Kern County Medical Society was present on this occasion.

E. A. Schaper, *Secretary.*

SAN BERNARDINO COUNTY

Minutes of the previous meeting were read and approved.

A notice of the next meeting of the Southern California Medical Association was read. It was decided that the May meeting of the San Bernardino County Medical Society would be held at the Redlands Community Hospital by invitation of the Physicians' Club of Redlands; that the date would be some time in May, shortly after the state medical meeting in Coro-

nado; that owing to the late May meeting the June meeting be omitted.

The committee on the Constitution reported that the revision should be entrusted to the delegates to the state meeting, and this report was adopted.

Communications were received, regarding medical legislation, from the Napa County Medical Society, Los Angeles Society for Neurology and Psychiatry, and from the Board of Medical Examiners. The secretary was instructed to communicate with our representatives in the Assembly and Senate as advised in these communications.

In regard to the resignation from the county medical society of Dr. William H. Craig, who offered his resignation because of retirement from practice, the secretary was instructed to write to Doctor Craig and to state that he had been made an honorary member of the San Bernardino Society and would continue to be carried on its roll.

A communication from the state regarding indigent physicians was read. As far as could be ascertained, there are no indigent physicians in this county.

The communication from Dr. Martha Welpton, chairman Public Welfare Committee of the California Medical Association was read. Dr. Mary Williamson was appointed a committee of one as Public Welfare Committee, and the secretary was directed to refer these data to her.

A communication from the American Mail Line regarding prospective attendance at the American Medical Association meeting in Portland was read. The secretary has forwarded a list of members of this society to the head office.

Mr. Burns of the State Board of Medical Examiners asked that a member of the county society accompany him to the office of the district attorney in the matter of filing a complaint of violation of the law. Doctor Abbott complied with this request.

The meeting adjourned at 1:30 o'clock.

The following bills are approved by the members of the San Bernardino County Medical Society:

Senate Bill No. 310 and Assembly Bill No. 260. The aim of this bill is to furnish proper medical supervision to helpless patients.

Senate Bill No. 214. This incorporates a one-year additional requirement in order to obtain a California certificate to practice medicine, said year to be spent in a hospital, in public health work, or in a laboratory vouched for by the school from which the applicant graduates.

Senate Bill No. 216. This bill, as amended, forbids beauty parlors to use any kind or type or form of electric appliance except galvanism in the removal of superfluous hair. Considerable opposition has arisen to this on the part of those operating beauty parlors over the fact that the bill prohibits the use of x-ray machines or appliances in the removal of superfluous hair, despite the fact that records throughout the United States show pathetic cases of permanent disfigurement arising from the use of x-ray apparatus on the innocent individuals who, through vanity, seek to have superfluous hair removed from the face, arms, legs, chest, etc. All dermatologists with whom we have communicated relate that the x-ray should be prohibited in the removal of superfluous hair.

A lien bill, now before the state legislature. This bill, if passed, would provide for the establishment of a lien against insurance carried by patients cared for by doctors and hospitals, said lien being for the purpose of settling accounts incurred by the patients. This is especially aimed at those transient patients who, following need of urgent medical attention, forget the rightful expense of hospital stay and the surgeon's fee.

A bill providing for a state subsidy for the care of tuberculous patients in city and county preventoria, and in city and county sanitoria and convalescent homes.

Other bills were discussed and considered by the members present, and it was voted that the San Bernardino Medical Society would oppose the following measures:

Bill No. 309. This bill would interfere with the proper administration of medical science and menace the welfare of the innocent sufferers from disease that can only be treated properly by medical men.

Assembly Bill No. 628. This bill strikes out all reference now in the Medical Practice Act to the drugless practitioner and writes in a provision creating an "osteopathic physician" with educational requirements. The certificate to be issued will permit the holder to use antiseptics, etc., including narcotics, and will also permit the practice of minor surgery.

E. J. Eytinge, *Secretary.*

SAN DIEGO COUNTY

At the close of the state convention perhaps your correspondent can do no better than record the sentiment that he hears expressed on every hand, on the streets, and in the hospital corridors: that it was great to have the members from all over the state respond to our open door, and give us the inspiration of their presence and their thoughts for a few days. We have enjoyed every moment of the time you spent with us.

Come again when it pleases you; the latchstring is always out. Robert Pollock.

SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at 8:30 o'clock, May 2, in the Medico-Dental Club Hall, 242 North Sutter Street, Stockton.

The meeting was called to order at 8:30 o'clock by Dr. C. B. Thompson, president, in the chair. Twenty were in attendance.

The minutes of the previous meeting were read and approved.

The secretary read the communication received from M. P. Shaughnessy, attorney of the society, relative to able-to-pay patients at San Joaquin County Hospital.

The chairman of the Legal Committee, Dr. R. T. McGurk, stated that the committee would render its report at the June meeting.

The application for membership of Paul R. Noetling of Linden, was read and referred to the committee on admission.

The chair presented Dr. George C. Hensel of the orthopedic staff of the University of California who gave an interesting discussion on "Arthritis." Roentgenograms of typical cases were demonstrated.

The present status of arthritis was discussed with an introduction mentioning its high prevalence among all classes and its extreme importance as a cause of disablement, pain and expense both to the individual, relatives, and the community. The confusion in classification and the present variety of terms mentioned in the nomenclature of this disease were tabulated and brought into a common relationship. Nichols and Richardson's terminology of proliferating or ankylosing arthritis and degenerative or nonankylosing arthritis were used as the basis of division for the two larger groups commonly met with. The relationship of the commonly used British and American terms to these two classes were defined and grouped. The technical nomenclature applicable when either type affects the spine were defined. That is, the spondylose rhizomelique or the Von Strumpell Marie type when the spine is involved in the proliferating type of the disease and the hypertrophic or Von

Bechterew type when the vertebral column is included in the degenerative arthritides.

The relationship of the proliferating type to focal infection was discussed. A certain group of this same type of arthritis have an infectious basis, as is commonly demonstrated by Neisser infections, where actual organisms can occasionally be cultured from joints.

Yet on the whole the influence of focal infection and the management of this type of case is often exaggerated to an extreme. Various causes from an experimental view have been thought to be factors and very likely are in many cases of this type. The question of metabolic changes, ductless gland disturbance, sugar tolerance, diet and intestinal derangement were discussed.

It was pointed out that many such factors may be an expression of general constitutional debility rather than isolated causes of a given case of arthritis. The many therapeutic practices in a general way were discussed as to the uses and abuses. Each case requires individual consideration as to the etiological factors. With this group of cases in the large sense, focal infections, gastro-intestinal and metabolic disturbances are the more suggestive isolated factors. In connection with drug treatment of this type of case, ortho-iodoxybenzoic acid was mentioned as offering the most hope from this angle of treatment. As successfully demonstrated by Yoemans and Young, it offers a definite indication of treatment in a selected group of proliferative cases in combination with hospitalization and orthopedic care. It was particularly stressed that in considering the various constitutional factors in causing or aggravating a given arthritis that the local care of these joints is of primary importance. The particular mechanical indication of treatment at the time will always be a matter for expert opinion and execution, and it was stressed that neglect of this consideration very often was responsible for the severe and crippling deformities that are always a danger and likelihood in this type of arthritis. Where the spine is involved in this type of the disease curative measures are more difficult than in the other joints, yet in the early stages amidoxyl should be used together with orthopedic attention to the spine in the interest of preventing crippling deformity which can be easily done though the disease cannot often be checked. In considering the degenerative or hypertrophic type it was pointed out that the etiology was the subject of still less certainty than in the proliferative types and that there is still less suggestion of a uniform or even occasional infectious origin.

The common occurrence of frankly traumatic, senile, and almost natural occurring types was stressed. The therapeutic indications as to general measures were again outlined and, excepting the mechanical form, faulty body chemistry was mentioned as likely the most frequent single factor in the etiology of the hypertrophic type. Vaccines and drugs were mentioned as being rather useless. Amidoxyl is definitely not indicated in this type of arthritis, excepting as a possible palliative measure for pain in such cases as may show a definite infectious origin, and such are very infrequent. Again the technical local care of involved joints was stressed. Though its necessity is not quite so urgent as in the proliferative type, nevertheless it should be the primary consideration in treatment. The technical indications in connection with the later pathology of this type of arthritis in their relationship to various joints were briefly discussed.

Operation is less often indicated in this type of arthritis than in the preceding ones. Mechanical alignment and correction and removal of loose bodies when they occur are definite indications.

Coxaemallum senilis is usually a special problem in each individual. Pseudo-arthrosis, reconstruction operation and arthrodesis were mentioned as having occasional usage.

Many questions were asked which Doctor Hensel answered in a very practical way. The chair expressed the appreciation and thanks of the society to the speaker of the evening. There being no further business the meeting adjourned at 10:15 o'clock.

FRED J. CONZELMANN, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Fresno County—Philip Sin Ching.
San Bernardino County—Harry W. Seiger.
San Diego County—Miriam Pool Huff.
San Francisco County—Chelsea D. Eaton.
Santa Barbara County—William H. Conser.
Santa Clara County—Richard T. Glyer.
Tuolumne County—George Levy.

Transferred Members

Joseph S. Rubin, from San Francisco to Los Angeles County.

Deaths

Anderson, Jennie H. Died at Los Angeles, March, 1929. Graduate of Colorado School of Medicine, Boulder-Denver, 1911. Licensed in California, 1912. Doctor Anderson was an affiliate member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Fottrell, Michael J. Died at San Francisco, May 19, 1929. Graduate of University of California Medical School, San Francisco, 1887. Licensed in California, 1887. Doctor Fottrell was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Newton, Frances Louise. Died at Sacramento, January 18, 1929. Graduate of Woman's Medical College of Pennsylvania, Philadelphia, 1895. Licensed in California, 1895. Doctor Newton was a member of the Yolo-Colusa County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Ritchie, Adam Marsden. Died at Pacific Grove, May 1, 1929. Graduate of Cooper Medical College, San Francisco, 1894. Licensed in California, 1894. Doctor Ritchie was a member of the Monterey County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Scroggs, Gustavus A. Died at Los Angeles, May 5, 1929. Graduate of Jefferson Medical College, Philadelphia, 1879. Licensed in California, 1901. Doctor Scroggs was a member of the Los Angeles County Medical Association and the California Medical Association.

OBITUARIES

John Melvin Gardner
1874-1929

Dr. John M. Gardner, member of the Santa Cruz County Society, died at the University of California Hospital, San Francisco, on May 8, 1929. A cerebral hemorrhage followed by pneumonia was the cause of death.

Doctor Gardner was born in Hillsville, Virginia, fifty-five years ago. The degree in medicine was attained at the University of Nashville, Tennessee, in 1909. He came to California in 1910, locating in Lodi after marrying Dr. Harriet Brown in Eureka. In 1925 the doctor moved to Santa Cruz, practicing here as an eye, ear, nose, and throat specialist.

In addition to membership in the county and state societies, Doctor Gardner was quite prominent in various lay fraternal organizations. The Santa Cruz County Society has lost an appreciated member in his passing.

SAMUEL B. RANDALL.

John Francis Cowan
1880-1929

Dr. John Francis Cowan, clinical professor of surgery, died at Los Angeles on May 17, at the age of 49. His wife, and a son and daughter survive him.

Doctor Cowan's untimely death has taken from us one who was universally loved and respected, and one who stood among the foremost of the surgeons of this coast. He was graduated from Stanford University in 1902 and was instructor in physiology there for the following four years. Then he went to Cornell University Medical School, where he received a degree of M. D. in 1910. The following two years he was intern at New York Hospital, and the next year was spent as resident surgeon there on the private side, as assistant to Dr. Frank Hartley. In 1913 he was invited to join the surgical staff of his Alma Mater, and came here as instructor in surgery. He passed through the grades of assistant and associate professor, and was made full professor in 1923. He resigned from the academic staff in 1926 to accept a clinical professorship, which he held up to the time of his death.

Doctor Cowan had a very excellent groundwork in biology, physiology, chemistry, and pathology, and his extensive clinical work in New York, as well as here, together with his years of research work, in which he was still actively engaged at the time of his death, qualified him for leadership in his profession, and seemed to mark him as the future outstanding surgeon of the coast. He was a conscientious and painstaking teacher, and was very much beloved by his students and by those associated with him on the faculty of Stanford Medical School. By the profession at large he was greatly respected both for his judgment and his skill.

Besides being an active member of the San Francisco County Medical Society and the state and national associations, he was a Fellow of the American Surgical Association and of the Pacific Coast Surgical Association. Modest and retiring to a degree, he enjoyed the confidence and love of all who knew him, and his death leaves a gap that will be slow in closing.

STANLEY STILLMAN.

Richard George Brodrick
1871-1929

On May 2, 1929, Dr. Richard George Brodrick was taken from us at the height of his career, age 58 years. He was a man who had shown his remarkable ability in several related fields. He received the degree of Doctor of Medicine from Cooper Medical College in 1892. During the following years, until 1899, he served as a medical officer in the United States Navy and as such participated in the battle of Manila Bay. After his retirement he devoted three years to graduate study in Vienna.

Returning to San Francisco he was selected as health officer during the stormy days of an epidemic of bubonic plague. The expedition and efficiency with which the necessary sanitary reforms were carried through was largely due to his tact and ability. As health officer, Doctor Brodrick became greatly interested in the construction of the new San Francisco Hospital and he added many admirable features to the plan. His interest was aroused to such an extent that he resigned as health officer and took over the management of the new institution when it was opened in 1915.

San Francisco owes Dr. Brodrick a heavy debt of gratitude for the standards which he established and which have been carried on to the present day.

Doctor Brodrick continued as superintendent of the San Francisco Hospital until 1919, when he was called to Alameda County to become director of hospitals and to plan the new county hospital on the other side of the bay. The Highland Hospital is a lasting monument of Doctor Brodrick's skill in planning and to his superb executive ability, to which also many other important hospitals testify which have been erected under his direction all along the Pacific Coast.

The esteem in which he was held by his confrères was shown by his election as president of the American Hospital Association in 1926.

Having finished his work in Alameda County, he accepted the invitation by Stanford University to take charge of their hospitals in 1927. This gave him an opportunity to develop a comprehensive plan for the future growth of the Stanford Medical School and its hospitals. It had just been decided to carry out

the first step of this projected development when he was stricken. His life was a full one, devoted to work and service to humanity.

Those of us who have had the great good fortune to know him intimately and to work with him will never forget the charm of his personality and the inspiration to progressive effort that he managed to convey to all who came in contact with him.

NEVADA STATE MEDICAL ASSOCIATION

R. R. CRAIG.....President
W. A. SHAW.....President-Elect
H. A. PARADIS.....First Vice-President
R. P. ROANTREE.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

A joint meeting of the Washoe County Medical Society and the Nevada State Dental Society took place at the new home of C. E. Rhodes, D. D. S., on Mark Twain Avenue, Reno, on the evening of May 14, J. La Rue Robinson, M. D., presiding.

The object of the joint meeting was a get-together to discuss border-line medical and dental subjects of interest to both dentist and physician.

The program led with a paper by John Tees, M. D., on "Infant Care." Doctor Tees' many years of specializing along the line of pediatrics made the paper interesting and practically adapted to those whose technical studies have not been so greatly elaborated as that of the essayist. An important review of the various commercial baby foods on the market, their adaptations for particular types of cases, modifications of the same with and without mother's milk, was dwelt upon at length. Also the nowadays much discussed subject of the vitamin element contained therein was brought out. The subject of pyloric spasm which occurs in some infants, its medical treatment with appropriate food and atropin likewise received a share of discussion. The paper was full of scientific suggestions.

The second paper to follow was given by the society's host, C. E. Rhodes, D. D. S. Doctor Rhodes in his paper on "The Teething Child and Care of the Mouth" went over the subject of primary and secondary dentition, pointing out the evils that could possibly arise from metastatic mouth infections, disordered digestion, chronic tonsil infections, and lastly the physical impediments to the child's chances in the school age as compared to the child who had been scientifically nourished, and whose mouth had received the same dental care that would be given to an adult. Doctor Rhodes said that simply because the patient was a child too many parents overlooked the child's right to receive the same care for health and comfort as that accorded the adult. The essayist and other dentists present were agreed that every town should have a child dental specialist. Doctor Carr, D. D. S., stated that many parents when bringing their children to a dentist expected that, as on railroads, children should be charged half rates.

An important point brought out by the essayist was the thumb-sucking habit of infants and young children. While the doctor did not theorize regarding morbid psychology as the underlying cause of this habit, the manifest result of mouth deformity was dwelt upon. This habit was prone to bring about tooth, jaw, and palate deformities. In some cases the upper teeth would project in an oblique front, the lower ones would appear to be pushed back from the up and down line of occlusion. Further, there would result palate deformities and a misshapen jaw which in later years would become a serious menace should artificial dentures ever be required.

The third and last paper was by Dr. M. R. Walker on the "Public School and the Child." As Doctor Walker has been the public school physician for the past twenty years, he was well fitted, from long observation relative to the community interest in the school child, to discuss the topic. Comparison of the underprivileged child in the home with the pampered youngster; the question of health and moral inheritances; the question of the general environment; of precocity and mental dullness; of the general interest by the Mothers' Clubs in child welfare; and the more sympathetic understanding of parents in every school community that health suggestions made for the sake of the child were not for personal gain were points presented. Such papers as Doctor Walker gave should be presented frequently before every Mothers' Club, and should stress health, the child's respect of law and of those above him, and reverence of the good, the true and the beautiful. If these points brought out by the essayist were dwelt upon in homes and schools, many young people would respect the better things of life.

The program concluded, the social hour followed. This was a most enjoyed affair. A delightful luncheon followed. Mrs. Rhodes was a most gracious hostess.

These functions encourage good attendance and bring the profession into closer contact. It was observed that many of the physicians and dentists have crossed the social dead line of formality, and many were calling each other by their front names.

We commend this type of combined social-professional meeting to the attention of all medical and dental societies.

THOMAS W. BATH, *Secretary.*

UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President
H. P. KIRTLEY, Salt Lake.....President-Elect
M. M. CRITCHLOW, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

OFFICIAL NOTICE

An enormous amount of work has been gone through with by Dr. J. J. Galligan and his associates with a view of making the coming convention of the State Medical Association a success, provisional program of which is herewith announced. Judging by advance reports the meeting in July should be one of the best ever held, and the editor can only urge all members of the Association to make it a point to be present and join in the feast of both scientific data and good fellowship which will be dispensed.

Utah State Medical Association
Thirty-Fifth Annual Meeting at Salt Lake City
July 1, 2, 3, 1929, at Memory House
Salt Lake City

General chairman of Committee on Arrangements, J. J. Galligan, M. D.

Chairman of Publicity Committee, J. U. Giesy, M. D.

Chairman of Entertainment Committee, Sol G. Kahn, M. D.

Chairman of Banquet Committee, M. M. Nielson, M. D.

PROGRAM

George H. Dern, Governor of Utah—Address of Welcome.

W. S. Thayer, M. D., Baltimore, Maryland, president of the American Medical Association—1. Individualism and Coöperation in Medicine. 2. Reflections on Angina Pectoris.

Donald C. Balfour, M. D., Rochester, Minnesota—Some Surgical Aspects of Diseases of the Upper Abdomen.

R. L. Cecil, M. D., New York City—1. Serum Treatment of Pneumonia. 2. Etiology and Treatment of Chronic Arthritis.

L. L. Daines, M. D., Salt Lake City—Two papers to be announced.

John W. Duncan, M. D., Omaha, Nebraska—1. Spinal Anesthesia. 2. Fractures.

Temple Fay, M. D., and E. P. Pendergrass, M. D., Philadelphia—The Value of Encephalography in the Diagnosis of Lesions of the Brain.

Norman M. Keith, M. D., Rochester, Minnesota—Clinical Significance of Various Types of Hypertension.

Glenn E. Myers, M. D., Compton, California—1. Personality Changes in the Course of General Medical and Surgical Disorders. 2. Mental Hygiene Problems, Psychiatry and the General Practitioner.

Eugene P. Pendergrass, M. D., University of Pennsylvania, Philadelphia—Pneumoconiosis.

F. W. Schlutz, M. D., University of Minnesota, Minneapolis, Minnesota — 1. Fundamental Factors Underlying the Development of Alimentary Disorders in Infancy and Childhood. 2. The Value of Present-Day Immunization Procedures Against Contagious Diseases.

Karl R. Werndorff, M. D., Council Bluffs, Iowa—Pathology of the Hip-Joint.

Arrangements are being made for a public meeting the night of July 1. The banquet will be held the night of July 2. Scientific meetings between 8 a. m. and 1 p. m. each day. There will be golf, trips, teas, etc., in the afternoons of the first two days.

M. M. Critchlow, *Secretary.*

COMPONENT COUNTY SOCIETIES

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held at the Salt Lake County General Hospital, Salt Lake City, April 8.

The meeting was called to order at 8:05 p. m. by President C. M. Benedict. Forty-five members and eighteen visitors were present.

The minutes of the previous meetings on March 11 and March 25 were read and accepted without correction.

The chair turned over the program to R. J. Alexander, county physician. The program was as follows:

Spinal Anesthesia, F. D. Spencer; Nephrolithiasis, J. P. Kerby; Hydronephrosis, F. A. Goeltz; Osteomyelitis of the Tibia, W. W. Stevenson; Tuberculosis of the Lung, M. M. Critchlow; Phrenectomy, Arthroplasty of the Elbow, Fracture of Epiphysis of Tibia, R. J. Alexander; Cerebrospinal Meningitis, B. E. Bonar; Carcinoma of Cecum, Clark Young; Congenital Heart Disease, Guy Van Scoyoc.

A letter from the Chamber of Commerce announcing the annual clean-up campaign from April 1 to April 22 was read.

The meeting was adjourned at 9:55 p. m., after which refreshments were served by the hospital staff.

* * *

The regular meeting of the Salt Lake County Medical Socicty was held in the Convention Room of the Newhouse Hotel, Salt Lake City, April 22.

The meeting was called to order at 8:15 p. m. by President C. M. Benedict. Forty-six members and six visitors were present.

Minutes of the previous meeting, April 8, were read and accepted without correction.

No clinical cases were reported.

F. A. Goeltz read a very interesting paper on "Hematuria," which was discussed by George Fister of Ogden, W. G. Schulte, J. P. Kerby, and John Z. Brown.

Mr. A. H. Lund read a paper entitled "Relationship of the Pharmacist to the Physician." This paper was thoroughly discussed by T. A. Flood, R. J. Alexander, E. F. Root, G. N. Curtis, M. M. Nielson, and Leaver Stauffer.

J. P. Kerby read a letter from the Castle Gate Fund Committee asking the society to set a fee schedule for patients requiring medical service. John Z. Brown moved that this matter be referred to the Fee Schedule Committee, and that the secretary be instructed to notify the Castle Gate Fund Committee that this had been done. Motion seconded and carried.

President C. M. Benedict announced that the meeting of Monday, May 27, would be a dinner meeting with the Weber County Medical Society, at which time the latter society would conduct the meeting. T. D. Cunningham of Denver will talk on "Allergy" at this meeting.

The society then proceeded with the election of delegates for the 1929 convention of the Utah State Medical Association. Sol G. Kahn moved that the first thirteen men receiving the highest number of votes be elected delegates, and that the remaining members be elected alternates in the respective order in receiving ballots. Motion seconded and passed. Twenty members were nominated for these offices, and M. M. Nielson moved that the nomination be closed. The motion was seconded, and carried.

The following is a list of delegates and alternates elected to serve two years.

Delegates—C. M. Benedict, T. F. H. Morton, W. G. Schulte, J. P. Kerby, J. E. Jack, R. C. Pendleton, R. T. Woolsey, W. Christopherson, F. J. Curtis, S. G. Kahn, W. F. Beer, F. R. Slopansky, and R. J. Alexander.

Alternates: M. M. Nielson, T. A. Flood, C. L. Shields, L. N. Ossman, D. W. Henderson, G. N. Curtis, and C. J. Alabaugh.

The hold-over delegates to serve one year are W. L. Rich, L. J. Paul, S. C. Baldwin, A. C. Callister, Roy Groesbeck, E. F. Root, L. R. Cowan, E. M. Neher, and F. L. Peterson.

The meeting was adjourned at 10 p. m.

Barnet E. Bonar, *Secretary.*

WEBER COUNTY

The meeting of the Weber County Medical Society was held at the Valley House, Huntsville, April 18. This was a joint meeting with the Weber County Dental Society, President A. H. Aland presiding. Dinner preceded the program.

Report of Committee.—Dr. J. D. Harding reported for the committee on group liability insurance. Mr. Haurtack of the United States Fidelity and Guaranty Company stated that if twenty-five members insured with the company under a group plan, the net price for each doctor would be about $18. Dr. Ezra Rich moved that this plan be followed, seconded by Dr. L. A. Smith. The motion failed to carry. Dr. E. P. Mills presented a plan to govern activities of school nurses; this was accepted without reading of the same. Dr. E. P. Mills made a motion that the society purchase an instrument for projecting microscopic sections on a screen. Dr. L. A. Smith discussed this motion. The motion failed to carry.

The program for the evening follows: "Dental Aspects of Infected Teeth," by Dr. W. S. Paine, discussed by Dr. E. E. Greenwell. "Teeth as a Source of Systemic Infection" was the title of a paper read by Dr. F. K. Bartlett, discussed by Dr. Ezra Rich. Dr. Sumner Gleason of Kaysville presented a paper on the "Care of Teeth in Children." He showed numerous x-rays of various deformities and plates of teeth before and after correction. Discussed by Dr. Eugene Smith.

This meeting was very much approved by all members, and it was the opinion of both physicians and dentists that a similar meeting should be held once a year. No definite action was taken. There were twenty-five physicians present and seventeen dentists.

G. M. Fister, *Secretary.*

UTAH NEWS

The regular monthly meeting of the Holy Cross Hospital Clinical Association was held on the night of April 15, in the assembly room of the hospital.

A good attendance was present, including members and nurses.

The following program was presented: Diabetes Mellitus Complicated by Epidemic Meningitis — A Case Report, by Doctors T. W. Stevenson and H. C. Clayberg. A Clinical Case of Diagnosis, by Doctors L. F. Hummer and M. Johnson. Electrocardiographic Tracings, by Dr. R. M. Tandowsky. Demonstrations of Pathological Specimens, by Dr. T. A. Flood.

An invitation is extended to all members to invite friends to attend these monthly meetings as guests of the Association.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Summer Courses for Graduates in Medicine.—Members of the medical profession are cordially invited to attend any of the following lectures and clinics to be offered during the summer courses for graduates in medicine at the University of California Medical School from June 3 to June 29, 1929. All of the lectures will be held in Toland Hall, University of California Hospital, San Francisco.

On Wednesdays, from 11 a. m. to 1 p. m., clinicopathological conferences will be held in Cole Hall, Medical School Building, San Francisco.

Monday, June 3, 12 noon—Frank W. Lynch, M. D.: "Five-Year End-Results in the Treatment of Cervical Cancer." 8:15 p. m.—Gordon E. Hein, M. D.: "Arteriosclerotic Heart Disease."

Tuesday, June 4, 12 noon—Karl F. Meyer, Ph. D.: "The Present Status of Meningitis." 8:15 p. m.—Alfred C. Reed, M. D.: "Bacillary Dysentery."

Thursday, June 6, 12 noon—Wallace B. Smith, M. D.: "Acute Mastoiditis." 8:15 p. m.—Frederick C. Cordes, M. D.: "Emergency Treatment of Eye."

Friday, June 7, 12 noon—Edwin I. Bartlett, M. D.: "Breast Lesions: Their Diagnosis." 8:15 p. m.—J. C. Geiger, M. D.: "Modern Epidemiology and Tularemia."

Monday, June 10, 12 noon—Howard C. Naffziger, M. D.: "Diagnosis of Brain Tumors." 8:15 p. m.—J. C. Geiger, M. D.: "Food Poisoning."

Tuesday, June 11, 12 noon—Frank Hinman, M. D.: "The Conduct of a Routine Urological Study." 8:15 p. m.—Alfred C. Reed, M. D.: "Sprue."

Thursday, June 13, 12 noon—Montague S. Woolf, M. D.: "Manifestations and Diseases of the Colon and Rectum." 8:15 p. m.—Karl F. Meyer, Ph. D.: "Problems of Malta Fever."

Friday, June 14, 12 noon—Hans Lisser, M. D.: "Adult and Childhood Myxedema, Diagnosis, and Treatment." 8:15 p. m.—Charles E. Nixon, M. D.: "Neurological Aspects of Pernicious Anemia."

Monday, June 17, 12 noon—William Palmer Lucas, M. D.: "Problems and Fallacies of Infant Feeding." 8:15 p. m.—R. Emmet Allen, M. D.: "Diet in Chronic Disease."

Tuesday, June 18, 12 noon—Wallace I. Terry, M. D.: "Postoperative Pulmonary Complications." 8:15 p. m.—Glanville Y. Rusk, M. D.: "Obscure Conditions of the Lungs."

Thursday, June 20, 12 noon—Chauncey D. Leake, Ph. D.: "Recent Advances in Pharmacology and their Application to Medical Practices"—Part I. 8:15 p. m.—Charles L. Connor, M. D.: "The Newer Pathology of the Kidneys."

Friday, June 21, 12 noon—Chauncey D. Leake, Ph. D.: "Recent Advances in Pharmacology and their Application to Medical Practices"—Part II. 8:15 p. m.—Fred H. Kruse, M. D.: "Causes of Failure in the Medical Management of Peptic Ulcer."

Monday, June 24, 12 noon—Reginald Knight Smith, M. D.: "Problems in Obstetrics in Private Practice." 8:15 p. m.—Ernest H. Falconer, M. D.: "Treatment of Pernicious Anemia with Liver Extract."

Tuesday, June 25, 12 noon—Alfred H. Washburn, M. D.: "Purpura in Childhood." 8:15 p. m.—Eugene S. Kilgore, M. D.: "Precordial Pain."

Thursday, June 27, 12 noon—John C. Ruddock, M. D.: "Digitalis—Its Uses and Abuses." 8:15 p. m.—V. H. Podstata, M. D.: "Present-Day Mental Hygiene Program and the Physician."

Friday, June 28, 12 noon—Paul O'Leary, M. D., professor of dermatology, Mayo Foundation, Rochester, Minnesota—Dermatological Clinic. 8:15 p. m.—Udo J. Wile, M. D., professor of dermatology, University of Michigan Medical School, Ann Arbor, Michigan—Dermatological Clinic.

Formation of Pathologic Society in San Francisco. On Monday, April 22, a meeting of physicians interested in pathology was held in the County Medical Society rooms in San Francisco, and there was formed an organization to be known as the San Francisco Pathologic Society.

A Constitution and By-Laws were adopted, and the following officers were elected: W. Ophüls, M. D., president; G. Y. Rusk, M. D., vice-president; Z. E. Bolin, M. D., secretary-treasurer. An Executive Committee was elected consisting of C. L. Connor, M. D., A. M. Moody, M. D., and W. T. Cummins, M. D.

The object of this society is to foster interest on the Pacific Coast. It is interesting to note that a similar society was formed in 1851 in San Francisco, and that this was one of the earliest medical organizations on the Pacific Coast.

Southern Pacific General Hospital Meeting.—The regular staff meeting of the Southern Pacific General Hospital was held on Wednesday, May 1, at 8:15 p. m. The program was as follows: Discussion of the clinical and pathological data of the fatalities for April; report of three neurosurgical cases, with demonstration of patients, by Dr. E. B. Towne; discussion of three interesting cases of lymphoid leukemia, interlobular empyema, and carcinoma of the thyroid with metastases to the skull, by Doctors P. K. Brown, G. R. Carson, L. B. Crow, W. W. Washburn, and D. W. Sooy; abstract of recent literature on clinical and laboratory medicine, by Dr. W. T. Cummins.

Course in Otorhinolaryngological Pathology to be Given by Dr. Joseph Beck.—At the invitation of the San Francisco County Medical Society, Eye, Ear, Nose, and Throat Section, Dr. Joseph Beck of Chicago has kindly consented to give a course in clinical pathology of the ear, nose, and throat. Details of this course, which was announced last month, follow.

The description of this course is best given in Doctor Beck's own words. He says, in speaking of the clinical demonstrations which make up the morning session of the course, "It is suggested that two or more of each type of pathological case be brought in so that I may have an opportunity to discuss a greater variety of pathologic states. It will be made clear to the students that this is a course on chronic pathology as applied to etiology, diagnosis, prognosis, and treatment. I have no intention of attempting to discuss methods of diagnosis or operations. Neither shall I discuss methods of treatment other than that which would come into the practical application of the underlying pathology.

"The course is given on three consecutive days—July 1, 2, and 3. There will be a two-hour session every morning from eight to ten, a clinical demon-

stration with discussion. A second session of one hour from six to seven in the evening will conclude each daily program.

"The first morning, diseases of the nose will be taken up, including deviation of the septum, chronic suppurative and nonsuppurative sinus disease, postoperative sinus disease with headache, and atrophic rhinitis.

"Any acute condition or neoplasm of the nose may be brought in and included for a brief presentation.

"Second morning, diseases of the throat, including tonsil and adenoid disease, luetic and tuberculous laryngitis, carcinoma of the larynx and neuroses and neuritides of the larynx.

"Any acute condition or neoplasm, etc., available may be brought in.

"Third morning, diseases of the ear, including chronic diseases of the external ear, chronic adhesive diseases of the middle ear, suppurative ear diseases (simple and complicated), and chronic nerve deafness (toxic, luetic, and otosclerotic).

"Any acute condition or neoplasm may be brought in for discussion."

In the afternoon session of the first and second day Doctor Beck will illustrate with his own projecting film, conditions discussed in the morning session.

At the request of Doctor Beck this course is limited to otolaryngologists. Those desiring to take this course will please send in their name to the secretary of the Eye, Ear, Nose, and Throat Section, San Francisco County Medical Society, 2180 Washington Street, San Francisco. There will be no fee charged for this course, but the number is limited. Please send in reservation as soon as possible.

The course will be given in the auditorium of the San Francisco County Medical Society building, 2180 Washington Street, on July 1, 2, and 3, from 8 to 10 in the morning, and from 6 to 7 at night.

Pacific Physiotherapy Association.—This association will hold its annual meeting at the Alexandria Hotel, Los Angeles, June 21 and 22, under the presidency of Dr. W. C. S. Koebig, with a banquet on Friday evening. An excellent program by men of national reputation is being prepared.

Preceding the meeting of the association the Western School of Physical Therapy will hold its eleventh annual session at the Alexandria, June 17 to 20, under the direction of Dr. Burton B. Grover of Colorado Springs. All physicians who are interested in the progress of physical therapy may obtain programs and full information by addressing Dr. Herbert V. Mellinger, 506 Detwiler Building, Los Angeles.

The Scientific Session of the American Heart Association will be held in Portland, Oregon, on July 9, 1929, during the meeting of the American Medical Association.

The American Association for the Study of Allergy will hold its next annual meeting in Portland, Oregon, Monday and Tuesday, July 8 and 9, 1929, at the time of the meeting of the American Medical Association. Further information may be obtained from the secretary, Warren T. Vaughan, Medical Arts Building, Richmond, Virginia.

The Thomas William Salmon Memorial.—Hon. George W. Wickersham announces the establishment of the Thomas William Salmon Memorial to provide recognition to the scientist who has made the greatest contribution in the fight against mental disease during each year. Awards are to be national and international, and will provide for the wider dissemination of the knowledge of mental hygiene and insanity through coöperation with the New York Academy of Medicine, in whose hands the administration of the $100,000 fund is to be placed.

Summer Course for the Study of Tuberculosis offered by California Tuberculosis Association, under the direction of Allen K. Krause, M. D., Johns Hopkins Medical School, July 29 to August 9, inclusive.

Address all communications to California Tuberculosis Association, Griffith McKenzie Building, Fresno, California.

Monday, July 29, at Lane Hospital, San Francisco:
9 a. m.—Lecture, Allen K. Krause, M. D. 11 to 1 p. m.—Laboratory, Ernest Dickson, M. D.
2 p. m.—Physical Diagnosis, Philip H. Pierson, M. D., and W. R. P. Clark, M. D.
4 p. m.—Ear, Nose, and Throat, Edward C. Sewall, M. D., John A. Bacher, M. D., and Harold A. Fletcher, M. D.

Tuesday, July 30, at Lane Hospital:
9 a. m.—Lecture, Allen K. Krause, M. D. 11 to 1 p. m.—Laboratory, Ernest Dickson, M. D.
2 p. m.—Physical Diagnosis, Philip H. Pierson, M. D., and W. R. P. Clark, M. D.
4 p. m.—X-ray Interpretation, Robert R. Newell, M. D.

Wednesday, July 31, at San Francisco Hospital:
9 a. m.—Physical Diagnosis, U. C. Wards, Sydney J. Shipman, M. D., and Lewis M. Mace, M. D.
2 p. m.—Urological Tuberculosis, Frank Hinman, M. D.
4 p. m.—Allen K. Krause, M. D.

Thursday, August 1, at San Francisco Hospital:
9 a. m.—Physical Diagnosis, U. C. Wards, Sydney J. Shipman, M. D., and Lewis M. Mace, M. D.
2 p. m.—Surgery, Harold Brunn, M. D., and William B. Faulkner, M. D.
4 p. m.—Lecture, Allen K. Krause, M. D.

Friday, August 2:
Sanatorium and Preventorium visit to Arroyo Sanatorium.
Lecture, Tuberculosis Organizations, Harold G. Trimble, M. D.
Sanatorium Technique, Chesley Bush, M. D.

Monday, August 5, at Lane Hospital:
9 to 10 a. m.—Demonstration of Tuberculins, Allen K. Krause, M. D.
2 p. m.—Artificial Pneumothorax, Philip H. Pierson, M. D.
4 p. m.—Abdominal Disturbances, Walter W. Boardman, M. D.

Tuesday, August 6, at Lane Hospital:
9 a. m.—Lecture, Allen K. Krause, M. D. 11 a. m. —Surgical Tuberculosis, Emile F. Holman, M. D., and Leo Eloesser, M. D.
2 p. m.—Surgery, Eloesser and Holman, M. D.
4 p. m.—Tuberculosis of the Eye. (Lecturer to be announced).

Wednesday, August 7, at University of California Hospital or San Francisco Hospital:
9 a. m.—Children's Tuberculosis, Clain Gelston, M. D.
10 a. m.—Children's Tuberculosis, Ernest Wolff, M. D.
2 p. m.—X-ray Interpretation — Children, William E. Chamberlin, M. D.
4 p. m.—Lecture, Allen K. Krause, M. D.

Thursday, August 8, at San Francisco Hospital:
9 a. m.—Orthopedic Tuberculosis — Children. (Lecturer to be announced.)

Thursday, August 8, at San Francisco Hospital:
2 p. m.—X-ray Interpretation, Howard E. Ruggles, M. D., and Lloyd Bryan, M. D.

Friday, August 9, at Veterans Bureau Hospital:
Light Therapy. (Lecturer to be announced).

An evening dinner, with a question box, will be arranged at which Doctor Krause will answer questions.

The Brodrick Memorial Fund.—A contribution of $1000 has been received by Stanford University to start the Brodrick Memorial Fund in honor of the late Dr. R. G. Brodrick, physician superintendent of Stanford University Hospital, and formerly president

of the American Hospital Association. The income from this fund is to be used for clinic free beds.

Further contributions to this fund will be gladly received in any amount, and should be sent to Dr. William Ophüls, Dean, Stanford University Medical School, 2398 Sacramento Street, San Francisco.

Los Angeles Society for Neurology and Psychiatry Dinner.—On May 15, Dr. Richard Dewey of La Cañada was given a complimentary dinner by the Los Angeles Society for Neurology and Psychiatry at the University Club. He is now in his eighty-fourth year, and has recently passed quite successfully through a pyloric perforation and a gastro-enterostomy. He related at the dinner some of his experiences as a volunteer assistant surgeon in the Franco-Prussian War in 1870 and 1871 in the military hospitals in France and Germany.

CORRESPONDENCE

STATE MEDICAL LIBRARY—SOME LETTERS THEREON

Note.—The following letters are here printed because they had to do with Senate Bill 842 (state medical library bill). These letters are printed for the information of members of the California Medical Association.

I. *Letter from Doctor Kress to Acting State Librarian and to Deputy Superintendent of Public Instruction.*

Los Angeles, April 23, 1929.

Miss Mabel R. Gillis,
Assistant Librarian California State Library,
Sacramento, California.

Mr. Sam H. Cohn,
California Deputy Superintendent of Public Instruction and Education,
Sacramento, California.

Dear Miss Gillis and Mr. Cohn:

Last week I wrote Dr. C. B. Pinkham, secretary of the California Board of Medical Examiners, in reference to Senate Bill No. 842, providing for a state medical library.

In his reply to us he states: "We can say, however, that last week we were called in consultation by Miss Gillis of the State Library and Mr. Cohn of the Department of Education, neither of whom seemed particularly impressed with the practicability of the medical library idea. We told them, as we have told everyone else, that the Board of Medical Examiners is not opposing the bill, nor have we spoken to any legislators in opposition to the bill."

I am quoting from this letter because under separate cover I am sending to each of you a copy of CALIFORNIA AND WESTERN MEDICINE of date of April 1929, on page 266 of which you will find some editorial comments concerning the state medical library bill.

I have also sent you a copy of a little leaflet on this subject that was sent out to members of the California Medical Association.

As a member of the California Medical Association I am very much interested in this proposed state medical library. On that account I am also interested in the viewpoints of all those who do not favor such a state medical library.

If it be not asking too great a favor, would you kindly write me and let me know of any of your objections to such a state medical library?

From my standpoint and from the standpoint of many other members of the medical profession it is hard to conceive any form of state library activity which could be of such great service to the interests of education and to the interests of citizens of California as this proposed state medical library.

In equal measure we are convinced that it should be a real part and parcel of the state library at Sacramento, which is the seat of state government, and that it should be part and parcel of the general state library which already exists at Sacramento, and which has all the machinery of operation to carry on its work.

We hope that as you read the comments in the state journal and in the leaflet which I sent you, you will be able to visualize somewhat better the plan which we have in our minds.

The matter will be also discussed in the May issue of CALIFORNIA AND WESTERN MEDICINE, because the proposition is one of major importance to the further development of scientific medicine in California.

With thanks for your kind attention to this,

Cordially yours,
GEORGE H. KRESS, M. D.

II. *Reply from Assistant State Librarian. Objections to State Medical Library Bill (S. B. No. 842).*

Department of Finance
California State Library
Sacramento, April 26, 1929.

Dr. George H. Kress,
245 Bradbury Building,
Los Angeles, California.

My dear Doctor Kress:

When asked about the state medical library bill I have expressed my opinion, which is as follows:

For some years the state library bought medical books. You know from your own experience how expensive they are and how difficult it is to keep a medical collection up to date. We had practically no call for medical literature. Consequently we finally decided that it was the proper course to discontinue buying medical books. Thereafter we referred the few people who called here for medical literature to the already existing medical libraries, particularly the Lane medical library, which has been very generous in lending its books throughout the state. From our experience, then, of some little time ago we feel that there is very little call for medical books from physicians generally. Our belief is that a medical library is of most importance when it is in connection with a medical school. It is accordingly our feeling that any money expended on a medical library should be used to build up those already in existence rather than for starting a new organization. It would be impossible to acquire the old books of the greatest historical interest. Medical books of today are expensive and, as I understand it from medical men, soon out of date. While here at the state library we do have the machinery for sending out books, it is my opinion that it would be many years before medical men could be induced to turn to the state library for their literature. Even the local men are so used to sending to San Francisco for their books, that I think they would naturally continue to do so. Also it would be many years before we could build up a reference collection that would equal what is already available. My whole point is that it seems a needless duplication to put this money into a medical library when we already have medical libraries in the state which answer our needs but which could be very much helped by some of this money if it could be diverted to them.

Sincerely yours,
MABEL R. GILLIS,
Acting State Librarian.

P. S.—I am sure that you realize that to get the fullest use of a medical library it would be necessary to have a trained medical librarian. To do the specialized reference work which your arguments suggest a person should be familiar with medical literature. Naturally we have no one on the staff who is, and at any rate the building up of a special library of this sort would require more help than we have. Money for additional help would have to be taken from the fund turned over for the purposes of the medical library. This would, of course, reduce the amount of money available for books and would be another indication of duplication, since the existing medical libraries already have their trained staffs of people who are accustomed to handling medical literature.

I would be very glad to talk with you some time on this matter and to tell you more about our plan of

general library service which tries to divide the field so that the various libraries will not be duplicating material but will be contributing to the service by taking care of their own particular fields.

III. *Letter from Doctor Kress to Assistant Librarian Gillis, answering some of her objections to State Medical Library Bill (S. B. No. 842).*

Los Angeles, April 29, 1929.

Miss Mabel R. Gillis,
State Librarian,
Sacramento, California.
Dear Miss Gillis:

Thank you very much for your letter of April 26 relative to the proposed state medical library. I regret that I cannot share the viewpoints which you express. It seems to me that you are in error in some of your conclusions because of lack of knowledge of the medical profession's viewpoints on these matters.

Let me explain myself somewhat more fully, even though the thoughts be somewhat at random:

1. Your experience at Sacramento in regard to the use of medical books by members of the Sacramento profession cannot be taken as a guide. When a medical man wants books or literature he wants a somewhat comprehensive presentation of the subject-matter in which he is interested. He wants something more than one or two antiquated textbooks. So far as I can learn, an efficient up-to-date medical library has never existed at Sacramento; so naturally our Sacramento colleagues would wish to utilize the facilities of the Lane Medical Library.

2. You state that it is your belief that a medical library is of most importance when it is in connection with a medical school.

Most of us who have been connected with teaching institutions and have at the same time had a wide experience with members of the medical profession and in organized medicine, hold quite a different opinion. A medical student has his work cut out for him when he confines his acquisition of knowledge to standard works. His knowledge of medicine is so incomplete that he is not in position, as an undergraduate, to attempt to read medical literature in general.

3. You state that money for a medical library should be used to build up those libraries already in existence.

We are in agreement with that thought, but we would accomplish this by having the state medical library coöperate with the Lane, Barlow, and University of California libraries in such fashion that duplication will be kept down to a minimum.

4. You state that it is your opinion that it would be many years before medical men could be induced to turn to the state library for their literature.

You probably have the official journal of the California Medical Association, which is known as California and Western Medicine, on your shelves. That journal reaches more than four thousand ethical physicians every month. A state library column could be inaugurated therein, and within a few months it would be possible to induce many, many men in the profession from one end of the state to the other to avail themselves of the privileges of the state medical library at Sacramento. All of that is a matter of publicity, and, with the state medical association in back of the state medical library, we feel quite satisfied that the component county societies and their members would be very glad to avail themselves of its use.

5. We believe it would be possible to build up a state medical library that could render efficient service to members of the profession from one end of the state to the other. It would not be necessary to expend money in duplicating expensive works that are now in the Lane or other medical libraries.

6. You write that you would like to see the money diverted to some of the medical libraries already existent in the state.

I know of no way in which state money could be diverted into such private institutions. I mentioned this point in an editorial which will appear in the May issue of California and Western Medicine.

7. We appreciate, as do you, that it is necesary to have a trained medical librarian. However, the employment of a trained medical librarian is no different than the employment of a librarian trained in some other line of library work.

We realize that some of the money in this initial appropriation would necessarily be taken from the fund which it is desired to allocate from the reserve resources of the California Board of Medical Examiners to the state library. It is our belief, however, that funds will continue to come for the perpetuation of the library from the reserve funds of the State Board of Medical Examiners, because all we need to do is to again reëstablish our two-dollar-a-year tax which was done away with at the last session of the legislature, and this would help bring in a goodly income each year.

8. Thank you very much for your invitation to have me talk over this some time, but I rarely get to Sacramento.

I am taking the liberty, however, of sending a copy of this letter to Dr. June Harris, who is a member of a local committee of the medical profession, and who is on the legislative committee of the California Medical Association, and who is particularly interested in this Senate Bill 842, which would provide for a state medical library division of the state general library.

I hope it will be possible for you to have a conference with Doctor Harris and his colleagues, because I believe that when you visualize this situation as we members of the medical profession outline it in our minds, you will be willing to coöperate with us, in fullest measure.

Cordially yours,
George H. Kress, M. D.

IV. *Letter of State Deputy Superintendent of Public Instruction giving his objections to the bill.*

(Letterhead of the Department of Education
State of California)
Post Office Box 615.
Sacramento, May 2, 1929.

George H. Kress, M. D.,
245 Bradbury Building,
Los Angeles, California.
Dear Doctor Kress:

I have your letter of April 23 and have a copy of Miss Gillis' reply thereto.

Inasmuch as Miss Gillis and I discussed this measure very carefully prior to the receipt of your letter, her reply is in effect the same as my reply would be, with the added knowledge which has come from her long service as assistant librarian.

May I make clear, if it is not already clear to you, that both Miss Gillis and myself are in entire sympathy with you in your desire to expend the surplus funds for a medical library. The only real point of difference is that Miss Gillis and I both feel that the library should be where the students are. If the amount of money you desire to expend were to be put into books which could be easily obtained by the students in the various medical schools this department would be strongly in favor of the expenditure of the money.

It is merely that there is a difference of opinion between you and us. Past experience has indicated that medical books have not been of much service when purchased by the state library or when distributed from the state library.

If I can serve you, assuming that you are convinced of the reasonableness of our position, I shall be very glad to do so in seeking to have this measure amended and passed. But two weeks remain of the present session and any changes which we may agree upon should be determined as soon as possible.

Very truly yours,
Sam H. Cohn,
Deputy Superintendent of Public Instruction.

[Editors' Note.—On the eve of the state medical meeting, the above letter was not answered.]

V. *Letter from Doctor Pinkham, secretary of Board of Medical Examiners, State of California, regarding income from annual license tax against doctors of medicine.*

San Francisco, California,
May 18, 1929.

Yours of May 17; Re: Annual Registration.

Dear Doctor Kress:

We received your letter at 11 a. m. Saturday, and could only refer to the annual report of the Board of Medical Examiners published in each issue of the directory in order to report the receipts from annual tax during the past ten years ending December 31, 1928, which was tabulated as follows:

1918	$ 17,201.39
1919	20,280.27
1920	18,053.05
1921	20,302.39
1922	18,421.02
1923	17,154.90
1924	23,555.37
1925	19,961.93
1926	22,227.36
1927	13,410.08
1928	12,562.89
Total for ten years	$203,130.65

In the above tabulation we have combined the receipts for annual tax with the receipt for delinquent tax. The reduction in the 1927 receipts is due to the legislature having reduced the annual tax from $2 to $1.

In reply to your query as to how many licensed M. D.'s there are in California, our records compiled for 1929 show that there are 8001 graduates of medical schools licensed as physicians and surgeons practicing in California, and in addition to this list there are 1701 licensed in California, but located in other states.

C. B. Pinkham, M. D.,
Secretary-Treasurer.

[Editors' Note.—From the above figures it is noted that the licensed physicians of California have practically paid in a total sum about equal to that now in the reserve fund of the state examining board.]

TWENTY-FIVE YEARS AGO*

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. II, No. 6, June 1904

From some editorial notes:

. . . *Constitution and By-Laws.*—At the Paso Robles meeting of the state society the new Constitution and By-Laws, practically as recommended and with only minor alterations—mostly of phraseology—was adopted. This action is exceedingly important, for many reasons. The word "regular" was stricken from the document, and the personnel of the membership in county societies is placed absolutely in the hands of each county society. Every legally qualified practitioner of medicine who does not claim to practice any "pathy," should be eligible to membership. . . .

. . . *Synthetic Remedies.*—The "newer materia medica," largely composed of synthetics and coal-tar derivatives, is both an interesting and a staggering problem. Many men of excellent judgment and cool, far-seeing calculation, have expressed the opinion that these newer chemicals are the materia medica of the future, and that their introduction and use will go far toward making of medicine a more exact science. This may or may not be true. . . .

. . . *Association Journals.*—We, in the West, are greatly favored of Divine Providence in many ways. We are not quite so narrow-minded and hidebound as some of our friends and professional relatives in the East, where, especially in New York, harmonious organization has been prevented for a number of years largely through the small and narrow-minded intellect of a few men. . . .

. . . *The Revised Constitution.*—At the May meeting of the San Francisco County Medical Society, amendments to the Constitution and By-Laws of the society were introduced. . . .

. . . All county societies now have the privilege of electing to membership any legally qualified physician who does not practice nor claim to practice, nor advertise himself as being connected with any special and particular school of medicine. . . .

From an article on "Pure Food Law" by M. E. Jaffa, University of California, Berkeley:

. . . The measure, in brief, provides for the prevention of adulteration, misbranding and imitation of foods and food materials, and for regulating interstate traffic therein. . . .

From the reports of the secretary of the Medical Society of the State of California at the thirty-fourth annual session at Paso Robles, April, 1904:

Report of Secretary.—To the Officers and Delegates of the Legislative Branch of the Medical Society of the State of California:

I herewith submit my annual report:

Pursuant to the policy of the Constitution, the work of the organization of county societies has proceeded energetically during the past year, and since our last meeting fourteen new county societies have been affiliated. They are as follows: Butte, with a membership of 15; Kern, 16; Kings, 9; Mendocino, 20; Merced, 9; Monterey, 20; Napa, 22; San Benito, 10; San Luis Obispo, 14; Santa Cruz, 19; Shasto, 16; Sonoma, 46; Ventura, 15; Yolo, 10, thus giving the society an increase of 241 in membership through the medium of new societies organized. . . .

Report of the Publication Committee.—The alternate plan was to set pretty high advertising rates; a high standard of ethics for the advertising pages; prosecute an energetic campaign for good, high-class advertising; stimulate organization throughout the state; publish the very best journal that time and hard work could make; invest more money for the first two or three years than would be called for by the other plan, but eventually secure a self-supporting publication that would not be a source of expense to the society after the investment of the first few years. This latter plan was adopted as the better business policy. . . .

Report of the Memorial Committee, J. Lambert Asay, M. D., Chairman.

. . . There comes a time in our deliberations when the busy cares of association work and the consideration of scientific problems should be laid aside for a few brief moments, that we may hearken to the voice of sorrow and pay tribute to our dead. . . .

. . . The life of the physician is by no means conducive to longevity. Every step in his pathway is beset by hazard. Each sleepless night, every anxious vigil over disease and suffering, the repeated drafts upon the vital forces by the conscientious discharge of duties, are sure to lessen the number of his days. Yet though the sum of his years be few, there is condensed in this short life more ripened experience and a greater familiarity with human nature and impulses, than is given to those of other pursuits or professions who have reached beyond their three score and ten. . . .

From reports of county medical societies:

Sacramento County.—The Sacramento Society for Medical Improvement met in regular session at the office of Dr. W. A. Briggs on March 17, it being also the annual meeting of the society. . . .

. . . The paper of the evening was read by Dr. Herbert C. Moffitt of San Francisco, on "Some Un-

* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

usual Forms of Exophthalmic Goiter—Their Diagnosis and Treatment." The discussion was opened by Dr. W. E. Bates of Davisville and Dr. S. E. Simmons, and participated in by many present. . . .

DEPARTMENT OF PUBLIC HEALTH

By W. M. Dickie, M. D., *Director*

Bacteriological Laboratory Makes Many Examinations.—The Bacteriological Laboratory of the California State Department of Public Health makes bacteriological examinations for all communities of California having populations less than 20,000. The bulk of the work carried on by the laboratory, therefore, is for rural communities and for small towns which are unable to provide the expensive equipment and the expert technical service that the laboratory must provide. Much of the bacteriological work for state institutions is also done in the state laboratory. The purposes of most of the examinations are twofold: (1) As an aid to physicians in establishing correct diagnoses of cases of communicable diseases. (2) As an aid to health officers in the enforcement of measures for the control of the communicable diseases, such as release from quarantine which may be dependent upon negative findings in examinations of specimens from a quarantine patient.

During the first two months of this year nearly 8000 specimens were examined in the State Bacteriological Laboratory. More than 5000 of these were examinations of blood for the diagnosis of syphilis (Wassermann tests). Most of these were from patients in state hospitals, state prisons, reform schools, and other institutions. The large number of these examinations indicates the high type of medical work that the state is giving to its wards, and it also indicates the valuable coöperative work accomplished between the various units of the state departments.

During the period mentioned more than 1500 examinations were made of nose and throat cultures for diphtheria. While some of these examinations were made for the purpose of establishing diagnoses, most of them were made for the purpose of determining the possibility of release of diphtheria patients from quarantine. Negative results in two specimens taken at least forty-eight hours apart are required before a diphtheria patient can be released from quarantine. Nearly 400 examinations were of sputum for cases suspected of tuberculosis and 200 of them were of blood and excreta made in connection with work in typhoid fever.

In addition to these examinations, several thousand examinations were made in the laboratory during January and February for the purpose of determining the presence of intestinal protozoa and worms. Since the World War there is an apparent increase in the number of individuals who may harbor intestinal protozoa. Many members of the medical profession have indicated an intense interest in the problems associated with intestinal protozoa and the large volume of work accomplished in the examination of specimens submitted to the laboratory indicates the importance of this work from a medical and public health point of view.

Many other types of examinations are performed in the laboratory, such as the examination of dogs' heads to prove the diagnosis of rabies, and the examination of rats and ground squirrels in order to detect the possible presence of plague. Examinations for malaria, pneumonia, anthrax, dysentery, trichinosis, tularemia, undulant fever, and many other diseases are also performed regularly in the state laboratory.

Influenza Increases Deaths from Communicable Diseases in 1928.—Deaths from communicable diseases in California in 1928 total 14,745, as against 12,797 for the year 1927. The increase is due to the many deaths from influenza and pneumonia that occurred in the fall of 1928, when influenza was widely prevalent. The deaths from influenza and pneumonia alone in 1928 total 6588. Appreciable decreases are noted in deaths from measles, diphtheria, and poliomyelitis. An increased mortality is noted in whooping-cough and epidemic meningitis.

Nineteen Hundred and Twenty-Eight Brings Low Typhoid Fever Death Rate.—Typhoid fever death rate in California for 1928 is 2.4 per hundred thousand population, the same rate as for 1927. When it is considered that more than thirty-four people out of every hundred thousand population died of typhoid fever in 1906 the remarkable lowering of the death rate proves the life-saving value in the institution of measures for the prevention of infectious intestinal disease.

A water-borne outbreak of typhoid fever has not occurred in California in five years. Cases of milk-borne typhoid fever continue to occur with more or less regularity and probably will occur until such time as adequate safeguards to public milk supplies are provided. The physical examination of all food handlers would undoubtedly contribute greatly to further reductions in typhoid mortality. Too much credit cannot be given to the purveyors of public water supplies for their successful activities in the delivery of pure water to the consuming public. Similar credit is awaiting the purveyors of public milk supplies.

The President's Proclamation—By the President of the United States of America—A Proclamation.—Whereas, The future of our nation rests with the children of today; and

Whereas, The good health and protection of childhood is fundamental to national welfare, and the march forward of our country must be upon the feet of children; and

Whereas, A joint resolution of Congress authorizes and requests the President of the United States to proclaim annually May 1 as Child Health Day; now

Therefore, I, Herbert Hoover, President of the United States of America, do hereby designate May 1 of this year as Child Health Day and do invite the people of the United States and all agencies and organizations interested in this most important subject to make every reasonable effort to bring about a nation-wide understanding of the fundamental significance of healthy childhood and of the importance of the conservation of the health and physical vigor of our boys and girls throughout every day of the year.

In testimony whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this twenty-fifth day of March in the year of our Lord one thousand nine hundred and twenty-nine, and of the independence of the United States of America the one hundred and fifty-third.

By the President,
Herbert Hoover.

Frank B. Kellogg,
Secretary of State.

Tehachapi Has a New Health Officer.—Dr. R. G. Doupe has been appointed city health officer of Tehachapi to succeed Dr. Clara M. Rinehart.

Successful Vaccination Prevents Smallpox.—During the nine years 1920-1928, inclusive, 33,546 cases of smallpox were reported in California; 406 of these cases were fatal. The California State Department of Public Health has secured vaccination histories for all of these cases with the exception of 482, which are not available. The histories of the 33,064 cases that are available show that 30,867, or 93.36 per cent, of these smallpox patients were never vaccinated; 1911, or 5.78 per cent, were vaccinated more than seven years preceding their attacks and 286, or 0.86 per cent, were vaccinated within seven years preceding their attacks.

Communicable Disease Reports for March 1929:

Chickenpox	2258
Diphtheria	185
Encephalitis (epidemic)	4
Measles	300
Meningitis (epidemic)	80
Poliomyelitis	3
Scarlet fever	1373
Smallpox	258
Typhoid fever	18
Whooping-cough	1165

Chickenpox, mumps, scarlet fever, and whooping-cough continue along lines of high prevalence. Improvement is noted in the reporting of the venereal diseases. Epidemic meningitis cases are more widely scattered.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. Pinkham, M. D.
Secretary of the Board

News Items, Doctors of Medicine, June 1929

Examiner Bureau, Sacramento, May 14.—The Administration's organization program for the 1929 session was virtually completed today when Governor Young signed three bills, establishing as many new departments in the State Government, the Department of Military and Veterans' Affairs, the Department of Professional and Vocational Standards, and the Department of Investments.—*San Francisco Examiner,* May 15, 1929.

The Cross of the Order of the Crown of Italy was yesterday pinned on Dr. Langley Porter, San Francisco physician, at a luncheon of the Italian-American Society in the Fairmont Hotel. . . . The insignia presented to Doctor Porter by the Acting Consul-General for Italy, Cavalier Alberto Mellini Ponce de Leon, was conferred by King Victor Emmanuel of Italy for distinguished services in fostering scientific relations between the United States and Italy.—*San Francisco Chronicle,* April 11, 1929.

Dr. Granville McGowan, Los Angeles physician, has the permission of Attorney-General U. S. Webb today to bring quo warranto proceedings to determine the right of a corporation to practice medicine in California. The corporation which Doctor McGowan proposes to bring suit against is the Medical Service Incorporation, Inc., of Los Angeles (*San Francisco Call,* May 3, 1929). (Previous entry, "News Items," November 1926.)

Through the earnest coöperation of Governor C. C. Young and his administration forces, California has leaped ahead at this session of the state legislature as foremost in the essential, practical strengthening of the battle against the illicit narcotic traffic evil. . . . Among some of the major items in the long list of accomplishments are to be noted:

1. Codification of the state narcotic laws.
2. Creation of post of Chief of the Narcotic Law Enforcement Division, granting to chief and inspectors full state peace officers' powers.
3. Placing of veronal on the proscribed list of drugs and forbidding general sale.
4. Providing for (presentation of) evidence before State Medical Examiners Board of violation of federal narcotic law.
5. Provision to continue by State Legislative Committee of investigations in narcotic traffic.
6. Further study of methods of coöperation with the United States Government by state enforcement officials.
7. General toning of the penal laws.
8. Policy strengthened as to punishment of narcotic law violators in respect to jail and prison sentences rather than by fines, which are deemed merely "licenses" to break the law.
9. Stiffening of prosecutions by courts.—*San Francisco Examiner,* May 4, 1929.

A verdict recommending that Dr. P. S. Traxler and Dr. R. S. Lanterman, Glendale physicians, be held and prosecuted according to law, was returned by the coroner's jury, which heard testimony in the inquest held today at the coroner's office in Los Angeles in the death of Miss Delphine Walsh, 22-year-old dancer of Los Angeles, who died yesterday in a hospital in this city. The jury found that Miss Walsh came to her death as the result of acute peritonitis following an illegal operation performed by Doctor Traxler, assisted by Doctor Lanterman (*Glendale News-Press,* May 4, 1929). The records of the Board of Medical Examiners show the license of Roy S. Lanterman was revoked on October 5, 1916, following a hearing on charges of an illegal operation. The action of the board was sustained by the court (36 Cal. Appellate, 472). Upon numerous petitions, supported by an overwhelming number of citizens, the board finally restored Doctor Lanterman's license on December 21, 1921.

Located in a cabin atop Saddle Rock Peak, off Los Flores Canyon, Dr. James H. Lloyd, well-known Chicago physician, was arrested yesterday afternoon for Chicago federal authorities. . . . Search for Doctor Lloyd had extended throughout the continent. The police have notified the federal authorities in Chicago of the arrest. Doctor Lloyd is said to have jumped bail recently and disappeared.—*Los Angeles Examiner,* April 18, 1929.

The judgment of the Superior Court restoring his license to Dr. Clayton Wheeler, San Francisco gland specialist, after the State Board of Medical Examiners revoked it, was upheld by the State District Court of Appeals yesterday, when it dismissed the appeal from the lower court's action filed by the Medical Board.—*San Francisco Chronicle,* April 16, 1929.

Indicted by the El Dorado County Grand Jury on three charges of grand theft, involving sums said to total more than $13,000, Dr. Joseph T. Wrenn, former superintendent of the El Dorado County Hospital, was arrested here last night.—*San Francisco Examiner,* May 8, 1929.

General News Items

Found guilty by a jury of twelve women on a charge of possession of a hypodermic device used for the same purpose as a hypodermic needle, Dr. J. Walter Clark, local chiropractor, was sentenced to pay a $50 fine or ten days in jail by City Judge Louis Budway. . . . A complaint against Doctor Clark was filed recently by J. A. Plank of the State Narcotic Division.—*Huntington Park Signal,* April 13, 1929.

According to reports, R. B. Crawford, mentioned in "News Items," April 1929, as charged with violation of the Medical Practice Act in connection with tonsillectomy performed by the electrocoagulation method, on April 20, 1929, pleaded guilty in the Superior Court of San Francisco and was placed on six months' probation.

Charged with violation of the State Medical Practice Act, Delmar J. Frazier, who lists himself as a physical therapeutist, was arrested in an office building at Twelfth and Washington streets in Oakland yesterday by J. W. Davidson, inspector for the State Medical Board (*San Francisco Examiner,* April 19, 1929). The records show that in Department 1 of the Oakland Police Court, Delmar J. Frazier pleaded guilty on May 14, 1929, and judgment was suspended by the court.

Dr. Florence Goodhall, chiropractor, today was in the county jail, where she awaits sentence to San Quentin for life for second degree murder in connection with the death, through an alleged illegal operation, of Mrs. Zeruah P. Mahan, 2129 Prosser Avenue, Santa Monica. . . . Judge Wood fixed next Friday as time for sentence, remanded Mrs. Goodhall to custody

and exonerated bond. Evidence at the trial showed that Ray F. Mahan, husband of the dead woman, took his wife to the chiropractor and that later Mrs. Mahan died of tetanus, which set in through neglect (*Hollywood News*, April 24, 1929). (Previous entry, "News Items, April 1929.)

Accused of having sold numerous prescriptions in violation of the Harrison Narcotic Act, Dr. E. Harrison will be arraigned this week in the United States District Court. Doctor Harrison is now at liberty on bail for $3000. It is charged that the defendant issued a number of drug prescriptions in the names of various persons and gave them to one person, said to be a drug addict.—*Los Angeles Times*, April 29, 1929.

The records show that, on May 13, W. F. Hoque, asserted cancer specialist (who has been practicing in San Jose many years) was adjudged guilty of violation of the Medical Practice Act, and sentence is to be imposed on May 17.

According to reports, Joe A. Hobson on May 10 pleaded guilty in a justice court of Victorville, San Bernardino County, to a charge of violation of the Medical Practice Act and was sentenced to pay a fine of $100, said sentence being suspended for one year on condition that defendant does not violate the Medical Practice Act during that period.

An appeal from the decision by Judge S. E. Crowe, fining Dr. Manuel Machado, Santa Maria chiropractor, $300 and sixty days in the county jail, will be made immediately, Attorney Fred Shaeffer announced this morning. Doctor Machado was sentenced yesterday for practicing medicine without a license, and a motion for a new trial, made by Attorney Shaeffer, was denied. Judge Crowe set Doctor Machado's bail at $2000. The defense contended that Doctor Machado should have been tried for a violation of the State Chiropractic Law, and not under the medical statutes (*Santa Maria Times* of April 30, 1929). (Previous entries, "News Items," December 1928; May 1929.) According to reports, Manuel Machado is alleged to have approached two prominent men in Santa Maria, asking them to endorse a note for $7500, telling them that his attorney, C. A. Chames of Los Angeles, was to deposit the money with the medical board as a guarantee that he would not practice medicine and that on June 21 the board would give him a physician and surgeon's license. We notified the authorities that such a statement was unqualifiedly false, and it is further reported that an attorney by the name of C. A. Chames cannot be located in the city of Los Angeles or elsewhere, nor is he known by the County Bar Association.

Hamilton McClarty, charged under the Diploma Mill Bill (Chapter 79, Statutes 1927), with filing fraudulent diplomas, etc., in an attempt to gain a California medical license, was on May 16, 1929, following his plea of guilty, placed on probation by Superior Judge Lile Jacks, city and county of San Francisco. Special Agent Davidson reported: "It is particularly interesting to note that one of the letters of character recommendation in the McClarty case is signed by Reuben L. McMasters, who owns and operates a drug store in Modesto, California, and who incidentally is mentioned in McClarty's affidavit as having purchased one of the National University of Belgium diplomas. In connection with his petition for probation, Hamilton McClarty filed an affidavit relating that in January 1927, for the sum of $500 he purchased from Date Alexander, who operated the Kansas City College of Medicine and Surgery, Kansas City, Missouri, the medical diploma of said institution, which diploma was dated in 1921, although purchased in 1927. This is most interesting, since the Kansas City College of Medicine and Surgery had its charter revoked by the State of Missouri June 23, 1926, that is, at least six months before the asserted purchase of this diploma. The charter was revoked because the school was involved in the Missouri diploma mill scandal in 1923-1925. A new charter was then obtained under the name of "American Medical University," which opened August 9, 1926, and now occupies the same site as its predecessor and is apparently being conducted by the same interests. But what matters a little question of dates in the purchase and sale of medical diplomas when large remunerative returns are forthcoming? (Previous entry, "News Items," October and December 1928; February 1929.)

"Announcement. Dr. H. Allan Peters of New York City, noted eye specialist and lecturer on 'Perfect Sight Without Glasses,' announces to the general public and to the many people who were unable to gain admittance to his last two lectures, that he will give a series of four free lectures on Sunday, Monday, Tuesday, and Wednesday, April 28, 29, 30, and May 1, at the Woman's City Club, 465 Post Street, at 8 o'clock each evening. Anyone wishing free tests, interview and advice, may make an appointment by calling Doctor Peters at 980 Bush Street" (*San Francisco Call*, April 20, 1929). H. Allan Peters, who, according to his handbills, has just completed a course of four lectures on the mysteries of "Vitalic Breathing, Life Building, and Eyes of Youth" at 465 Post Street, almost disappointed his audience at another gathering May 3. While his auditors were gathering for the lecture, Peters was taking a short cut to the city prison in tow of J. W. Davidson of the State Board of Medical Examiners. He was booked on a charge of violating the Medical Practice Act (*San Francisco Chronicle*, May 4, 1929). The Department of Licenses, State of Washington, reports that H. Allan Peters holds a diploma from the American University of Sanipractic, Seattle, Washington, which institution is alleged to have had its charter revoked for fraud. Said board also reports the revocation of the Washington licenses of all individuals, including Doctor Peters, who were licensed as sanipractors on diplomas from the American University of Sanipractic.

The records show that Katherine Schleef was recently in the court of Police Judge George J. Steiger, Jr., remanded to the probation officer for a period of six months following a hearing on a charge of violation of the Medical Practice Act, during which time should she again violate the terms of the Medical Practice Act, the judge is reported to have announced that she would be sent to the Superior Court for trial.

Dr. M. Alvin Smith, pioneer California physician, was lodged in the city prison here yesterday following arrest in Plymouth, Amador County, on a charge of knowingly depositing poison in the mails. Smith is accused of supplying morphin to a wealthy Los Angeles man, an attorney in Jackson, and others, according to Assistant United States Attorney Albert E. Sheets. . . . Since August 11, 1928, Smith, who has practiced medicine for forty-five years, has purchased 5500 one-half grains of morphin, which Sheets claims he mailed almost daily to wealthy clients in shipments valued at $3, $5, and $10.—*Sacramento Union*, May 1, 1929.

Identification of Physicians' Cars.—At a recent meeting held by a special committee representing the Medical Society of the County of New York and the Police Commissioner, it has been arranged that the New York City police will recognize the special automobile insignia issued by the American Medical Association. Cars bearing this device will not be molested even though standing in restricted parking areas. The county society has issued cards to its members for their further identification in case any trouble should arise. Members driving their own cars should always carry these cards on their persons.—*Medical Journal and Record*, May 1929.

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